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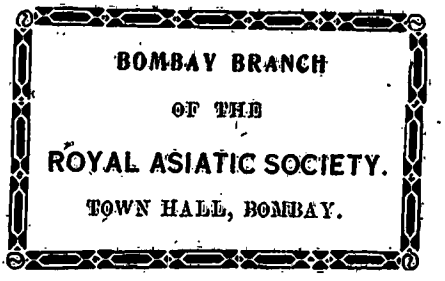

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SUPPLEMENT

TO THE

ENGLISH BOTANY

OF THE LATE

SIR J. E. SMITH AND MR. SOWERBY.

THE DESCRIPTIONS, SYNONYMS, AND
PLACES OF GROWTH

BY

WILLIAM JACKSON HOOKER, LL.D.
REGIUS PROFESSOR OF BOTANY IN THE UNIVERSITY OF GLASGOW,
F.R.S. F.S.A. L.S. &c. &c.

AND OTHER EMINENT BOTANISTS;

THE FIGURES BY

JAMES DE CARLE SOWERBY, F.L.S. &c.

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. . . . . "sylvas saltusque sequamur
Intactos. . . . . " VIRG.

VOL. I.

LONDON:

SOLD BY J. D. C. AND C. E. SOWERBY, NO. 2, MEAD PLACE, LAMBETH;
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TO

AYLMER BOURKE LAMBERT, Esq.

V.P.L.S. F.R.S. F.S.A. H.S. &c. &c.

Sir,

The liberal patronage you have long afforded to Botany claims the admiration of every lover of the science. With pleasure, therefore, we take the opportunity of dedicating to you this Continuation of English Botany, *as a slight expression of our gratitude for the many favours we have received at your hands.*

The original Work has acquired a great name. That the kind assistance of able friends may render our Supplement *in some degree equal to it, and thus not unworthy of your approbation, is the fond wish of,*

Sir,

Your obedient Servants,

James de Carle Sowerby,

Charles Edward Sowerby.

Mead Place, 1831.

ADVERTISEMENT.

FIFTEEN years have now transpired since the *General Index* appeared, which formed the concluding part of Smith and Sowerby's "ENGLISH BOTANY." Often during that period, it was in the contemplation of the proprietors of that work to publish a Supplement of those plants which had been discovered to be British since its termination.

The death of Mr. Sowerby in 1822, and the recent loss of the learned President of the Linnean Society, immediately after he had put the finishing touch to the last and most valuable of his writings, "*The English Flora,*" effectually prevent the original conductors from having any share in the continuation. Already a number of drawings have been prepared, and it is now the intention of the two sons of the late Mr. Sowerby, Messrs. J. D. C. and C. E. Sowerby, to publish these and figures of other plants necessary to the work, as supplementary volumes; which, when completed, will at least comprise *every known British Phænogamous Plant.* The proprietors calculate upon extending the work to two more volumes; by which means they will

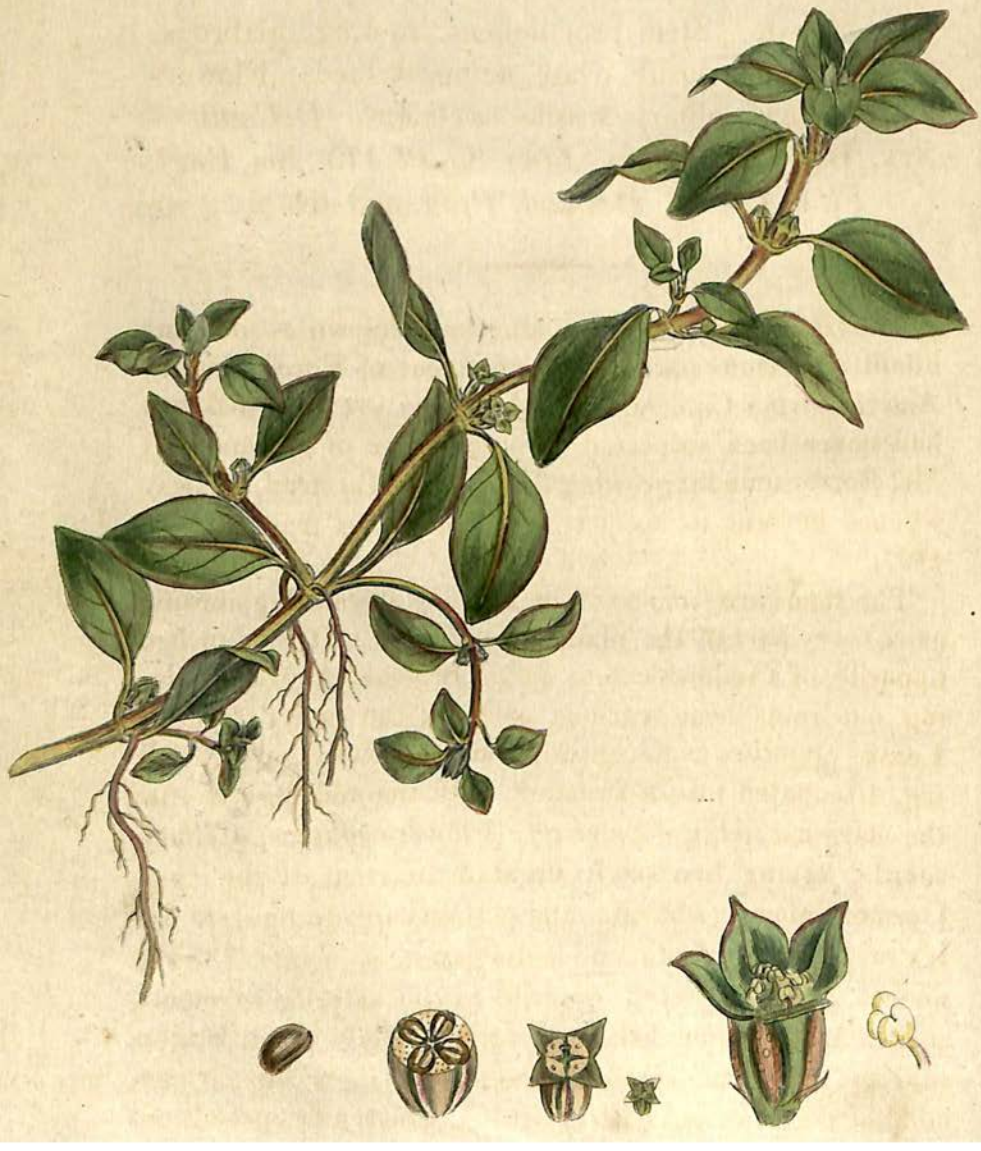
be able to introduce likewise such new *Cryptogamic Plants* (exclusive of the *Fungi*) as have not been included in Dr. Greville's "*Cryptogamic Flora of Scotland.*"

In the descriptive part, the proprietors have been kindly assured of the assistance of Dr. HOOKER and Mr. BORRER, and of other able botanists, whose names or initials will appear at the end of their respective communications.

Each monthly Number, executed in the same manner as the preceding part of the work, will consist of five plates, with the accompanying letter-press, printed on both sides the leaf, (price 3*s*.) and in many instances one plate will contain two cryptogamic species.

The Messrs. Sowerbys will feel grateful to any botanist who will supply them with living native specimens of plants suited to the work, addressed to them at No. 2, MEAD PLACE, WESTMINSTER ROAD, LAMBETH.

July 1829.



ISNARDIA palustris.

Marsh Isnardia.

TETRANDRIA Monogynia.

GEN. CHAR. *Cal.* 4-cleft, superior. *Petals* 4, or wanting. *Stigma* capitate. *Capsule* obovate, quadrangular, 4-valved, 4-celled, many-seeded, crowned with the calyx.

SPEC. CHAR. Stem procumbent, rooting, glabrous. Leaves opposite, ovate, acute, stalked. Flowers axillary, solitary, sessile, apetalous. *DeCand.*

SYN. Isnardia palustris. *Linn. Sp. Pl.* 175. *Sm. Engl. Fl. v.* 4. 264. *DeCand. Prod. v.* 3. 61.

ISNARDIA palustris has long been known as an inhabitant of various parts of the continent of Europe and of America, from Canada to Georgia and even Mexico, but had never been suspected to be a native of England, till Mr. Borrer found it growing in a pool, at Buxtead, Sussex, whence he sent us specimens in flower and fruit, in July 1827.

The stems are from 6 to 8 inches long, rounded, glabrous, as is every part of the plant, branched, with the branches opposite, of a reddish colour below, brownish above, throwing out roots from various parts of the under surface. Leaves opposite, ovate, entire, somewhat succulent, spreading, attenuated into a footstalk, with the midrib, and often the margins, red, quite entire. Flowers solitary, axillary, sessile, having two small tubulate bracteas at the base. Germen inferior, obovate, and obtusely quadrangular. Calyx of 4, broadly ovate, and acute green, segments. Corolla none. Stamens placed opposite to the calycine segments, small. Anthers roundish, pale yellow. Style short. Stigma capitate. Capsule retaining the same form as the germen, and equally crowned with the calyx, which now spreads out

horizontally. Seeds oblong, fixed to the interior angle of the cells.

DeCandolle has united many of the American *Ludwigiæ* with *Isnardia:* hence arises the necessity of framing a specific character, to distinguish the present from the other species of the genus.

Dr. Boott's specimens, gathered near Boston in the United States, and a plant sent to us from Nepâl by Dr. Wallich, offer no characters by which they can be distinguished from the Europæan *Isnardia palustris*.—W. J. H.

ROSA Sabini.

Sabinian Rose.

ICOSANDRIA Polygynia.

GEN. CHAR. *Cal.* urn-shaped, fleshy, contracted at the orifice, terminating in 5 segments. *Petals* 5. *Seeds* numerous, bristly, fixed to the inside of the calyx.

SPEC. CHAR. Prickles scattered, straight, unequal, intermixed with setæ. Leaflets doubly serrated, slightly hairy, chiefly beneath. Calyx-segments pinnate. Fruit nearly globular.

SYN. Rosa Sabini. *Woods Tr. of L. Soc. v.* 12. 188. *Sm. Engl. Fl. v.* 2. 380. *Lindl. Ros.* 59. and *Syn. Brit.* 100. excluding the variety.

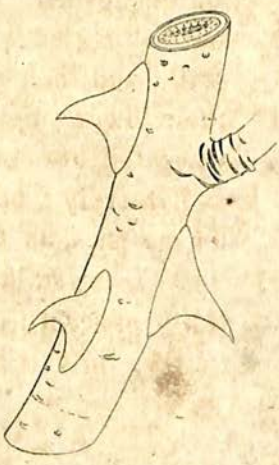
THAT "the line of specific discrimination can scarcely be accurately drawn" among "the beautiful forms" of the Roses, was the remark of the regretted friend whose assistance we now much miss, when describing for this work, five-and-thirty years ago, the first of the five Roses at that time recognised as British species. Nor is the remark less apposite at the present day; so little has our real knowledge in this respect kept pace with the increase of the number of supposed species. Of these no fewer than twenty-two are enumerated in the recent *English Flora* of the same excellent author, and a few additions have since been made to the list. To the botanist whose name Mr. Woods has affixed to the plant before us we look with confidence for much sound information, whenever he shall favour the world with the result of his observations on the splendid collection of the genus which his exertions have brought together in the garden of the Horticultural Society.

R. Sabini is found wild in various places in Scotland and the North of England. Our drawing was made from garden specimens, that we might be certain of figuring Woods's

plant. The more divided calyx has been chiefly depended on, as distinguishing it from its near affinities, *R. Doniana*, *R. gracilis*, and *R. involuta*. Like the other two, it is much less closely set with prickles than the last of these, and grows twice or thrice as tall, attaining, or exceeding, in favourable situations, the height of eight feet. The leaves are, in general, but slightly pubescent, and give out the agreeable turpentine scent common to *R. villosa* and its affinities, their underside being sprinkled more or less copiously with glands. The flowers, which expand in June, are sometimes of a beautifully varied pink, sometimes white, often tipped with crimson on the outside. They grow solitary and in threes; sometimes, but not frequently, in larger clusters. The fruit is globular, ovate, and urceolate, on the same bush. Its colour when ripe is deep red.

Whether the falcate shape of the larger prickles of *R. gracilis*, and its more simple calyx, sufficiently and permanently characterize that plant as a species, is very questionable.—W. B.

b



ROSA sarmentacea.

Straggling Rose.

ICOSANDRIA Polygynia.

GEN. CHAR. *Cal.* urn-shaped, fleshy, contracted at the orifice, terminating in 5 segments. *Petals* 5. *Seeds* numerous, bristly, fixed to the inside of the calyx.

SPEC. CHAR. Prickles uncinate, uniform. Leaflets doubly serrated, carinate, very smooth. Calyx-sements elongated, pinnate. Fruit elliptical.

SYN. Rosa sarmentacea. *Woods Tr. of L. Soc. v.* 12. 213. *Sm. Engl. Fl. v.* 2. 390. *Winch Geogr. Distrib. ed.* 2. 48.

R. glaucophylla. *Winch Geogr. Distrib. ed.* 1. 45.

R. canina. *Curt. Lond.* as to the figure.

R. canina β. *Lindl. Syn. Brit.* 102.

A COMMON briar in hedges and thickets, of straggling, and often of feeble growth; but strong plants also are not rare, which rise to the height of eight or ten feet. The prickles are hooked, not very numerous, some scattered, others in substipular pairs. The leaflets vary, in different plants, through all the gradations from an ovate to a narrow lanceolate figure, and from a very glaucous to a full and shining green. They are carinate, free from pubescence, but with glands in general on their stipules, their foot-stalks and their edges, and sometimes, but rarely, a few on their lower surface. The serratures, often remarkably divaricated, are not simple, yet not seldom imperfectly double, as if merely toothed by the marginal glands. The upper leaves pass, as usual in this tribe of Roses, into bracteas. The flower-stalks grow in compound clusters, in threes, or solitary, according to the vigour of the plant and their situation on the bush. They are either naked, or set with

feeble setæ, which degenerate occasionally into soft spreading hairs. We do not recollect finding any hairs or setæ on the calyx-tube, except at the very base. The segments of the calyx have a long narrow leafy point, and narrowly lanceolate pinnæ; the edges of which, sometimes naked and entire, are more usually toothed, and fringed, often very beautifully, with glands. The petals are of a delicate pink, or, now and then, white. The stigmas are but slightly protruded. The fruit is bright scarlet, pulpy when ripe, elliptical; globose in the *var.* δ of Woods, the specimens of which have a peculiar aspect. We have figured at *b* a specimen received from Mr. Winch, as his *R. glaucophylla*.

The trivial name *sarmentacea* (not a very appropriate one) was adopted from a MS. of the late Dr. Swartz. This supposed species, through all its variations, presents no character, but the rather evasive one of the double serratures, to distinguish it from the equally variable *R. canina*, *t.* 992. It should not be forgotten, that our friend Mr. Woods proposes his species with the usual modesty of real science; and in some instances, more, as he himself has premised, to excite attention to the plants in question, than from a decided opinion that they are truly and permanently distinct.

W. B.

OPHRYS arachnites.

Late Spider Orchis.

GEN. CHAR. *Cal.* spreading. *Nectary* without a spur, convex.

SPEC. CHAR. Lip longer than the coloured calyx, projecting from its base a flattened, glandular, lobe. Petals deltoid, downy.

SYN. Ophrys arachnites. *Sm. Engl. Fl. v.* 4. 273. *Willd. Sp. Pl. v.* 4. 67. *Curt. Mag. t.* 2516.
O. insectifera *η*. *Linn. Sp. Pl.* 1343.
Orchis *n.* 1266. *Hall. Hist. v.* 2. 134. *t.* 24. *f.* 1.
O. araneam referens. *Vaill. Bot. Par. t.* 30. *f.* 10—13.
O. arachnites. *Scop. Carn. v.* 2. 194.—&c. &c.

THIS *Ophrys* first appeared as a British plant in the Appendix to the 4th volume of *English Flora*, being then discovered upon the chalk downs of South Kent, between Folkstone and Sittingbourne, in various places. It flowers with *O. apifera* in May and June.

The general character of this species resembling that of *O. apifera*, with which, and probably with *O. fucifera* (*English Flora*, *v.* 4. *n.* 414. 4.), it forms frequent hybrids, the essential distinctions are to be sought in the position of the lobe at the base of the nectary lip, which is *never recurved;* in the more or less deltoid form of the purplish or green petals; in the more blunt and short, as well as paler, calyx-leaves; and in the proportion borne to them by the lip, which is either *equal* or *longer*, and which presents, in the true plant, a nearly entire margin, and a more obvious shade of green in the various lines and spots upon its dull or intense brown disk.

The recurved terminal segment in *O. apifera* is awl-shaped, and much less fleshy: in our plant this lobe is frequently

trifid, and always smooth from its insertion. The small gland observed in the sinus at the base of the lip of *O. fucifera* cannot be mistaken for that of *O. arachnites*, with which the former plant has few characters in common, flowering earlier, and presenting strap-shaped, minutely downy, and jagged petals. The column of *O. arachnites* has, in the majority of instances, a straight beak, and the space below the stigma is stained of a blackish-green.—G. E. Smith, M.A.

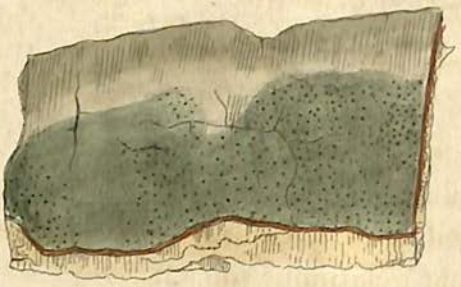


Fig. 1.

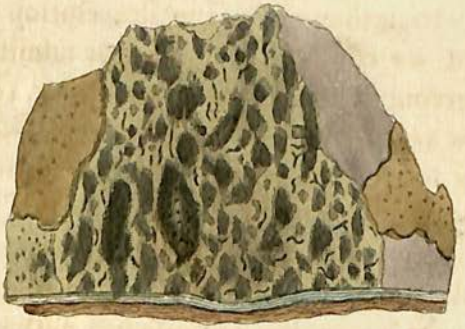
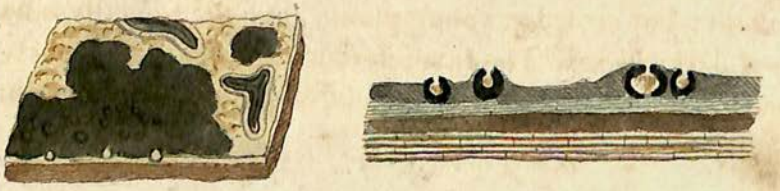


Fig. 2.



Verrucaria olivacea Fig. 1.

2597. (Fig. 1.)

VERRUCARIA olivacea.

Olive-crusted Bark Verrucaria.

CRYPTOGAMIA Lichenes.

GEN. CHAR. *Tubercles* of a different substance from the thallus, simple, convex, not expanding, but furnished with a central pore, and inclosing a somewhat gelatinous nucleus.

SPEC. CHAR. Crust indeterminate, filmy, continuous, or slightly cracked, roughish, olive-green. Tubercles prominent, hemispherical or somewhat conical, black, slightly rugose; the thallus rising about their base or investing their whole surface.

SYN. Verrucaria olivacea. *Pers. in Ust. Ann. st.* 7. 28. *t.* 3. *f.* 6. *B. a. b. Schrad. Spicil.* 108. *t.* 2. *f.* 1.
V. carpinea. *Ach. Meth.* 120. *Lich. Univ.* 281. *Syn.* 88.

ON the smooth trunks of thorns, ash-trees, &c. Specimens from Schrader and from Acharius justify our references to those authors; and we quote Persoon on the authority of Schrader, strengthened by the description in Usteri's *Annalen.* Yet we confess this synonym admits of doubt; Acharius referring it to his own *V. analepta,* (our *t.* 1848,) which we now regard as a mere variety of *V. epidermidis,* and appearing to have received our present plant from Persoon himself, with the name of *V. carpinea.* This is indeed very closely allied to *V. epidermidis.* We are led to separate it chiefly by the more considerable and somewhat rugged crust. This part is usually, not always, without gloss, and varies in intensity of hue: sometimes it is almost black. It spreads, in general, indeterminately, and to a considerable extent; but crowded young plants have occasionally a narrow darker edge. The tubercles also afford some distinctive marks. Their base rarely spreads, or stains the crust around

it, but is usually enveloped by the thallus, which frequently spreads over their whole surface. Now and then they are bare, black, and polished. They have often a rugged and imperfect appearance. As in *V. epidermidis*, and in various other species, the orifice varies from a regular pore to a minute chink, and broken tubercles occasionally form a white spot surrounded by a narrow black ring.

We adopt the present genus, under a character intended to include the Acharian genera *Verrucaria*, *Endocarpon*, and *Pyrenula*. Some of its species are given in our former volumes, at *t.* 533, 593, 594, 595, 1499, 1500, 1512, 1681, 1698, 1711, 1712, 1752, 1776, 1848, 1891, 2012, 2013, 2412, 2455, 2456, 2539, 2540, 2541, 2580: and perhaps those at *t.* 677, and 2372, Acharian *Porinæ*, might be referred to it.

2597. (Fig. 2.)

VERRUCARIA rhyponta.

Black Stain Verrucaria.

SPEC. CHAR. Crust roundish, filmy, continuous, roughish as if minutely flocculose, black. Tubercles very minute, prominent, hemispherical, black, for the most part slightly rugose.

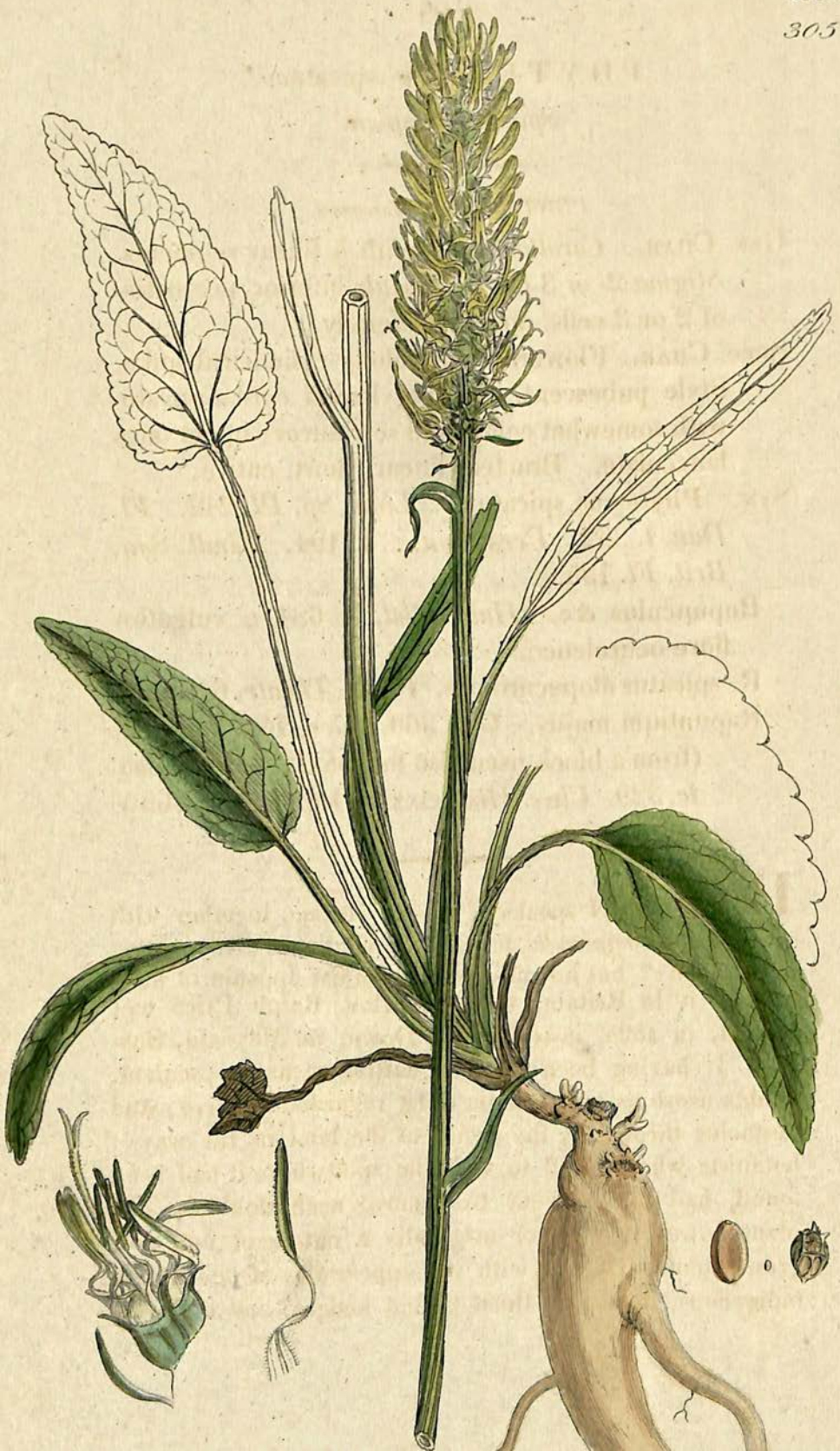
SYN. Verrucaria rhyponta. *Ach. Lich. Univ.* 282. *Syn.* 89.

IT is not wonderful that a production so obscure as the present should have been but little noticed. It was first observed in Britain by Mr. Lyell, in the New Forest, and it has since been found in the forests of Sussex, on the trunks of young trees. It grows parasitically on the

Graphis scripta of Acharius*; or rather, to all appearance, it is formed beneath the crust of that plant, and gradually bursts through and destroys it in little stain-like spots. The thallus is of a dull black, sometimes slightly tinged with grey or olive. It appears roughish under a glass, as if minutely granulated, or, more properly, flocculose or fibrous. Somewhat of a metallic-like lustre is here and there observable. This might, in our English specimens, be attributed to the crust of the Lichen on which they occur; but it is found also on a specimen from Acharius, which is seated unaccompanied on the bark. The tubercles, so minute as to be scarcely discoverable by the naked eye, are usually of the same hue as the thallus, and roughish, as if encrusted by it: occasionally they are polished, and more perfectly black. They are orbicular, moderately convex; their apex is sometimes slightly papillose, sometimes umbilicate; their orifice extremely minute, often hardly to be detected; their nucleus whitish.

The less spreading thallus, and the much more minute tubercles, seem to distinguish this little plant from *V. olivacea*. Yet Mr. Lyell has found, on beech bark, in the New Forest, a dark olive-crusted *Verrucaria*, nearly intermediate in both these respects. We refer it rather to *V. olivacea* than to *V. rhyponta*: future observation may perhaps prove it distinct from both.—W. B.

* *Syn. p.* 81. where *G. pulverulenta* and *G. Cerasi* stand as varieties of it. Perhaps *G. serpentina* ought to be united to the same species. Our *Opegrapha scripta, t.* 1813, is very different, and scarcely distinct from *O. Lyellii, t.* 1876.



PHYTEUMA spicatum.

Spiked Rampion.

PENTANDRIA Monogynia.

GEN. CHAR. *Corolla* rotate, with 5 linear segments. *Stigma* 2- or 3-cleft. *Capsule* inferior, prismatic, of 2 or 3 cells, opening laterally.

SPEC. CHAR. Flowers in an oblong-cylindrical spike. Style pubescent. Lower leaves cordate-ovate, with somewhat compound serratures; upper ones lanceolate. Bracteas linear, short, entire.

SYN. Phyteuma spicatum. *Linn. Sp. Pl.* 242. *Fl. Dan. t.* 362. *Pers. Syn. v.* 1. 194. *Lindl. Syn. Brit. Fl.* 135.

Rapunculus &c. *Hall. Hist. n.* 684, *α.* vulgatior flore ochroleuco.

R. spicatus alopecuroides. *Park. Theatr.* 648. *f.* 2.

Rapuntium majus. *Ger.* 369. *Ger. Em.* 453. *f.* 1. (from a block used also in *Lob. Hist.* 178. *Lob. Ic.* 329. *Clus. Hist.* clxxi. *Dod. Pempt.* 165.)

PARKINSON speaks of this *Phyteuma*, together with some of the *Campanulæ*, as growing wild "in divers places of this land:" but no subsequent botanist appears to have noticed it in Britain, until the Rev. Ralph Price met with it, in 1825, near Hadlow Down, in Mayfield, Sussex. It having been formerly cultivated as an esculent, doubts arose as to its claim to be regarded a native; and obstacles thrown by the owner of the land in the way of botanists who wished to visit the spot where it had been found, had no tendency to remove such doubts. The plant however, whether originally a native or not, now grows abundantly, and with the appearance of being truly indigenous, in woods, thickets and hedges, and fields re-

cently cleared of wood, in several distinct stations in the parishes of Mayfield and Waldron. In one of these, Knight's Farm, Mayfield, a mile from Cross-in-hand, our specimens were gathered, early in July 1826, when the flowering season was almost past.

The herb arises from a white, fleshy, spindle-shaped root, is smooth in every part, and has a milky juice. The stems are from a foot to nearly three feet high, simple, straight, angular, terminated by an oblong spike of yellowish-white flowers, which becomes cylindrical as the flowers expand, and gradually attains, in strong plants, the length of three or four inches. The root-leaves and lowest stem-leaves are stalked and heart-shaped, with serratures not regularly double, nor yet, or but rarely, quite simple. (See our slightly magnified sketch.) The leaves higher up are simply serrated and gradually narrower. The upper part of the stem is bare of leaves; or, if a few occur, they are mostly linear and entire, like the bracteas in the spike, which are usually so short, except a few of the lowermost, as to be hidden among the flowers. The style is bifid; the capsule of two cells. Occasionally, as if by accident, three stigmas are to be found.

It is somewhat doubtful whether the blue-flowered variety mentioned by authors be not really a distinct species. —W. B.

SALIX Doniana.

Donian Willow.

DIOECIA Diandria.

GEN. CHAR. Male, *Cal.* a scale of an imbricated catkin, single-flowered. *Cor.* none. *Nectary* a gland at the base of the stamina. *Stam.* 1—5. Female, *Cal.* and *Nect.* as in the male. *Cor.* none. *Stigmas* 2. *Caps.* of 1 cell and 2 valves. *Seeds* tufted.

SPEC. CHAR. Leaves partly opposite, obovate-lanceolate, acute, slightly serrated, even; livid and somewhat silky beneath. Stipules linear. Branches erect. Catkins erect, cylindrical. Germen stalked, silky, longer than the obovate scale.

SYN. Salix Doniana. *Sm. Engl. Fl. v. 4. 213.*

ALL that we know of this remarkable willow is derived from a plant communicated, as British, by the late Mr. Don to the late Mr. G. Anderson. In many points, as observed in the *English Flora*, it resembles *Salix purpurea*, *t.* 1388; but, although we want the proof which the male flowers would afford, we believe it placed correctly in that work with the affinities of *S. fusca*, and next to *S. incubacea*.

Shrub six feet high, or a little more, branched from the base. Branches procumbent at their origin, then upright; straight and wand-like at first; afterwards producing numerous small twigs; silky whilst very young, soon denudated, of a greenish ash-colour, sometimes tinged with purple; old bark grey, not so remarkably yellow within as in the monandrous species. Buds red, slightly downy. Leaves on short broadish footstalks, some of the lower ones in pairs, the rest spirally scattered; those on the strong shoots about an inch and a half long, those on the small twigs not more than half that length; the edges a little recurved, en-

tire towards the base, slightly serrated in the broader part towards the point; the point itself usually deflexed; the upper side flat, or somewhat convex, even, grass-green, with scattered, deciduous, appressed, silky hairs when young; the under side glaucous, with a greater quantity of such hairs, and somewhat prominent veins. Stipules small and deciduous, linear or narrowly lanceolate, with a few glandular teeth. Catkins earlier than the leaves, erect, cylindrical, scarcely an inch long, on stalks scarcely half their own length, beset with a few small recurved bracteal leaves. Flowers closely set, each consisting of a blackish, bearded, obovate scale, a minute simple nectary, and an ovate-oblong short-stalked germen, grey with silky hairs, which overtops the scale by about half its length, and is terminated by a very short style with two small, thickish, emarginate, pale stigmas, which soon turn brown. The capsule we have not seen perfected.

The flowers appear with us early in May.—W. B.

SALIX incubacea.

Longer-leaved Silvery Willow.

DIOECIA Diandria.

GEN. CHAR. Male, *Cal.* a scale of an imbricated catkin, single-flowered. *Cor.* none. *Nectary* a gland at the base of the stamina. *Stam.* 1—5. Female, *Cal.* and *Nect.* as in the male. *Cor.* none. *Stigmas* 2. *Caps.* of 1 cell and 2 valves. *Seeds* tufted.

SPEC. CHAR. Leaves elliptic-lanceolate, nearly entire, acute, with a twisted point; glaucous and silky beneath. Stipules stalked, ovate, acute. Stem procumbent; branches erect. Catkins erect, oblong-cylindrical. Stalk of the silky germen about as long as the obovate scale.

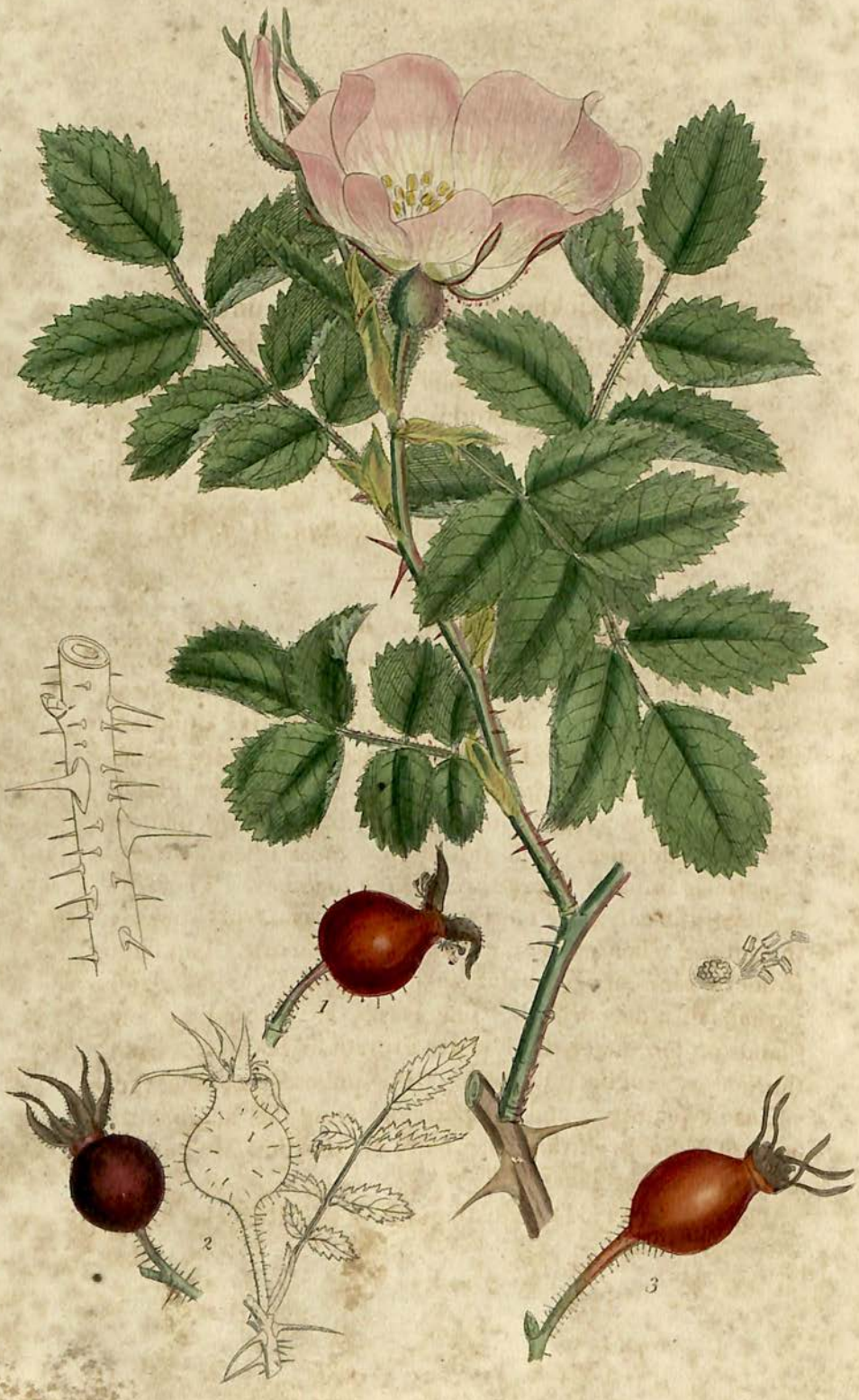
SYN. Salix incubacea. *Linn. Sp. Pl. ed.* 2. 1447. *Fl. Suec. ed.* 2. 351. *Sm. Engl. Fl. v.* 4. 212. excl. all the other synonyms?

SHRUB about four feet high. Bark ash-coloured, yellowish within; that of the young twigs purplish brown, covered with appressed silky hairs. Leaves spirally scattered, about an inch long, on short slender stalks, spreading or somewhat ascending, usually a little curled; the acute point, except in the smaller lower leaves, always twisted to one side; edges scarcely at all recurved, entire, or sparingly and inconspicuously serrated; upper surface flat, or very slightly convex, often grass-green and shining, yet with numerous minute appressed hairs, scarcely wanting even in old leaves; underside glaucous, and silvery with close silky hairs; veins slightly prominent beneath, and becoming so above in drying. Stipules on short stalks, small, ovate or lanceolate, entire, or toothed with a few

glands. Buds pale, very silky. Catkins earlier than the leaves, about an inch long, on short stalks bearing a few bracteas like the lowermost leaves of the barren twigs; flowers closely set, with a blackish, bearded, obovate calyx-scale, scarcely longer than the considerable stalk of the germen. Germen ovate-lanceolate, silky. Style short. Stigmas about as long, cloven, pale or reddish.

The Herbarium of Linnæus proves this his *Salix incubacea*; but our specimens received from Germany as the *S. angustifolia* of Wulfen, and which agree better with the description in Jacquin's *Collectanea*, are closely allied to Smith's *S. Arbuscula*, *t.* 1366, if really distinct from it; and Willdenow's *S. incubacea* is probably the same. All the synonyms quoted from the older authors we regard as extremely doubtful.

Our specimens are the produce of cuttings brought from Hopton, Suffolk, where the plant was discovered by Mr. Forster. It flowers with us in May, at the same time with *S. argentea*, to which it betrays the closest affinity in its mode of growth, flowers, stipules, and silky pubescence, and from which it differs in little besides the shape of the leaf. Serratures are indeed more frequently found, and more apparent when present; but in *S. argentea* the leaves are not always strictly entire. We have seen, on Swiss specimens, the male flowers of *S. incubacea*, but they afford no distinctive marks. The more humble *S. adscendens*, *t.* 1962. (*S. fœtida* of *Engl. Fl.*) is, on the other side, very difficult to be distinguished by any sound character from *S. incubacea*. Perhaps future observations may induce botanists in general to unite the three, if not to join to them also the *S. fusca* and *S. repens* of Linnæus, which Wahlenberg and Fries (to whom our *S. adscendens* seems unknown), include as one species with *S. argentea* and *S. incubacea* under the name of *S. fusca*.—W. B.



Smith 1st 1820

ROSA Doniana.

Donian Rose.

ICOSANDRIA Polygynia.

GEN. CHAR. *Calyx* urn-shaped, fleshy, contracted at the orifice, terminating in 5 segments. *Petals* 5. *Seeds* numerous, bristly, fixed to the inside of the calyx.

SPEC. CHAR. Prickles scattered, straight, unequal, intermixed with setæ. Leaflets doubly serrated, hairy on both sides. Calyx-segments nearly simple. Fruit globular.

SYN. Rosa Doniana. *Woods Tr. of L. Soc. v.* 12. 185. *Sm. Engl. Fl. v.* 2. 378.

R. Sabini β. *Lindl. Ros.* 59. & *Syn. Brit.*, 100.

PROBABLY a mere variety of *R. Sabini*. Our specimens were gathered at Henfield, from the very bushes from which, chiefly, Mr. Woods drew up his description. These spread much by root, and grow, in their native situation, five or six feet high. The prickles are rather more numerous than in *R. Sabini*; in the abundance of the gland-bearing bristles, *setæ*, intermixed with them, we find no constant difference. The flowers are most often solitary, sometimes in pairs, more rarely three together. The segments of the calyx are mostly, but not always, truly simple: the pinnæ, when present, are extremely narrow. The fruit is more regularly globular than that of *R. Sabini*, and perhaps of a deeper red. The leaves have usually a few glands on the underside, and are greyish on both sides from the denseness of the pubescence. The pubescence, however, varies in quantity; and in specimens from the neighbourhood of Edinburgh there are hairs on the flowering twigs as well as on the leaves.

The late Mr. G. Don distinguished the Rose he found

in Clova from *R. involuta*, by its running less at the roots, as well as by the less crowded prickles. Plants sent by him to our gardens throw up fewer suckers than our Sussex *R. Doniana*, and have longer and more urceolate fruit, and altogether recede less from *R. Sabini*. Their flowers are almost of a pure white; those of the Sussex plant are more deeply tinged with pink.

Perhaps Mr. Winch had not seen the true *R. involuta* growing, when he proposed, in his *Geographical Distribution of Plants*, to unite *R. Sabini* and *R. Doniana* with that species. To this we cannot assent. Still less can we, with Seringe, (*Decand. Prodr. v. 2.* 609,) arrange *R. involuta* as a variety of *R. spinosissima*, (his *R. pimpinellifolia*,) although it approaches it by its humble growth and its crowded prickles. Its fruit, which has not been described, is smaller than that of *R. Doniana*, varies from globose to urceolate, and is dark red when ripe. To supply former deficiencies, we add a representation of it, from a plant from the Cambridge garden, at fig. 2; as also of the fruit of *R. rubella*, *t.* 2521, received from Mr. Winch, at fig. 3.—W. B.

Fig. 1.

Fig. 2.

Endocarpon pulchellum Fig. 1.

_____ *euplocum* Fig. 2.

Sep.r 1st 1829.

2602. (Fig. 1.)

VERRUCARIA pulchella.

Little Filmy-leaved Verrucaria.

CRYPTOGAMIA Lichenes.

GEN. CHAR. *Tubercles* of a different substance from the thallus, simple, convex, not expanding, but furnished with a central pore, and inclosing a somewhat gelatinous nucleus.

SPEC. CHAR. Scales leaf-like, very thin, membranous, smooth, greenish-grey, roundish, with an elevated incurved edge; at length crowded, waved, cut into rounded lobes, and sprinkled with powdery granules; underside pale brown, with woolly fibres. Tubercles nearly globular, black, immersed; the apex only at length exposed.

MISS Hutchins only appears to have gathered this species with tubercles. She found it on a mountain near Bantry, growing on *Lichen plumbeus* on stems of heath. The plant itself is of frequent occurrence on mossy trees in Sussex, but seems to have escaped notice elsewhere. It usually grows on *Jungermannia dilatata*, and forms wide but interrupted patches.

Individual plants are seldom two lines in diameter. When young, the thin, almost filmy, concave, rounded leaf has, under a glass, the appearance of a scutella, with a peculiarly neat hem-like rim, and a disk either even or marked with a few wrinkles concentric with the rim. In this state the plants are often scattered separate over the moss; but they soon, in general, become crowded, variously waved and curled, and broken at the edges into lobes of various sizes, which form tolerably regular segments of independent circles. As the growth advances, powdery granulations burst forth, and by degrees obliterate the edges and spread over the disk of the leaf. The colour of the living plant is a sil-

very grey, or, when wet, a glaucous green, rather deepest in the powdery parts: in drying it becomes almost white. The underside is closely attached by extremely fine pale woolly fibres. When any portion remains free it is of a buff hue, and appears, when magnified, of a rather loose texture and almost downy. The tubercles cause each a little protuberance on the underside of the leaf, and the apex at length breaks through the upper surface, forming a regular slightly prominent speck, just visible to the naked eye, and pierced with a central pore. The nucleus is brown with a carneous tinge, and has a small cavity in the centre when dry. Under a powerful glass it appears composed of a mixture of innumerable linear and globular pellucid corpuscules.

This curious little production is so unlike to every other Lichen, that its very genus must have remained doubtful but for Miss Hutchins's fortunate discovery of the tubercles. Acharius, to whom Sussex specimens were communicated, thought it a *Thelephora*, thus excluding it even from the natural order to which we hold it to belong.—W. B.

2602. (Fig. 2.)

VERRUCARIA euploca.

Curled Peltate Verrucaria.

CRYPTOGAMIA Lichenes.

GEN. CHAR. *Tubercles* of a different substance from the thallus, simple, convex, not expanding, but furnished with a central pore, and inclosing a somewhat gelatinous nucleus.

SPEC. CHAR. A coriaceous peltate leaf, deeply lobed, with jagged curled recurved edges, naked on both sides; olive-green above; tawny beneath. Tubercles immersed, nearly globular, pale except the slightly prominent apex.

SYN. Lichen euplocus. *Ach. Prod.* 141.

Endocarpon euplocum. *Ach. Meth.* 127. *t.* 3. *f.* 4. *Lich. Univ.* 301. *Syn.* 102.

E. miniatum β. pusillum. *Wahl. Fl. Lapp.* 462.

WE owe the knowledge of this as a British species to Mr. W. Robertson, a very accurate investigator of the Lichens. He discovered it by the Tyne, a little to the West of Newcastle, "growing scattered, not in patches," on sandstones exposed to the tide.

The general outline of the plant is orbicular. The largest specimens, which are scarcely half an inch in diameter, are sometimes polyphyllous; the smaller ones are simple, but mostly cut, often almost to the centre, into several irregular undulated and imbricated lobes, with edges again jagged, or crenate, and recurved. The upper surface is of a dull greyish copper-brown in dried specimens: Mr. Robertson observes that it has whilst recent a brighter olive-green than it subsequently assumes when moistened, but that the bright tawny colour of the underside scarcely changes, merely becoming a little paler in long-kept specimens.

The deep, laciniated lobes, and the colour of the under-

side, distinguish this plant from *V. leptophylla:* yet so closely is it allied to that species, that the propriety of separating it may admit of doubt. We can by no means regard it, with Wahlenberg, as a variety of *V. miniata,* nor refer, as he does, to *t.* 2012. *f.* 1. of this work as a representation of it. We are, indeed, now aware of a different error in that plate; the Loch Lomond specimens only, *fig.* 2, being *V. leptophylla,* and those from the Hill of Kinnoul, *fig.* 1, a mere state of *V. squamulosa,* (the *Endocarpon squamulosum* of Acharius, *Lich. Univ.* p. 299.) of which our *L. lachneus, t.* 1698, is but another variety. *V. leptophylla,* like *V. cuploca,* is affixed by a central callus, and destitute of fibres on the underside.

Mr. Robertson has discovered an English station of the true *V. leptophylla,*—rocks by Bassenthwaithe Water, Cumberland.—W. B.

VERONICA agrestis.

Green Procumbent Speedwell.

DIANDRIA Monogynia.

GEN. CHAR. *Cor.* inferior, of 1 petal, 4-cleft, wheel-shaped; lowest division narrowest. *Caps.* 2-celled.

SPEC. CHAR. Flowers solitary. Leaves stalked, ovate, crenate. Stems procumbent. Segments of the calyx oblong, blunt. Capsule obcordate: lobes turgid, obsoletely keeled, approximated. Seeds cupped, about 6 in each cell.

SYN. Veronica agrestis. *Linn. Sp. Pl. ed.* 2. 18. *Fl. Suec. ed.* 2. 7. *Schrad. Fl. Germ. v.* 1. 42. *Sm. Fl. Brit.* 24. *Engl. Fl. v.* 1. 24. but not the figures quoted from *Engl. Bot.* and *Fl. Dan.*—*Curt. Lond.*—*Fries. Nov. ed.* 2. 2. *Reichenb. Iconogr. cent.* 3. 66. *t.* 227. *f.* 440. *Wahl. Fl. Suec. v.* 1. 10. excl. the varieties. *With. v.* 2. 17.

V. pulchella "*Bastard.*" *DeCand. Fl. Fr. Suppl.* 388.

Alsine foliis Trissaginis. *Ger. Em.* 616. *f.* 1. *Parks. Theatr.* 764. *f.* 4.

THERE is a remarkable difference of appearance between the plant before us, indubitably *Veronica agrestis* of Linnæus, and that figured in *t.* 763 of this work; and accurate examination proves them satisfactorily distinct. The latter is presumed to be *V. polita* of Fries, notwithstanding some trifling discrepancies in his description. The two frequently grow intermixed in cultivated ground, and flower throughout the summer. The present is perhaps of the more general occurrence, but both are very common.

They agree in the procumbent, flaccid, cylindrical stems, branched at the base only, and much elongated as the flower-

ing advances, beset all around, but more densely on two opposite sides, with short hairs curved upwards, intermixed with a few longer ones; the short leaf-stalks; the somewhat twisted segments of the calyx, much enlarged after flowering; the corolla shorter than the calyx; the recurved fruit-stalk; the obcordate capsule, with a narrow sinus, and covered with gland-tipped hairs; and the peltate, wrinkled, shell-like seeds. But in this species the herbage is pale green, by no means greyish as in that, and usually less hairy: the leaves are ovate, very slightly cordate at the base, less wrinkled, less deeply and more regularly serrated, or crenate: the calyx-segments are narrower, ovate-lanceolate, or oblong, blunt; not ovate, and acute; considerably longer, in the seeding state, than the capsule, which in the other they scarcely exceed; not imbricated at the base, as in that, but more divaricated in pairs: the corolla, in that all blue with deeper veins, is in this pale blue or rose-colour in the upper half, white in the lower, or often entirely white: the capsule has an obscure keel, not observable in the other: the seeds are about 6 in each cell, (Linnæus, in *Flora Suecica*, says 4;) in the other twice as numerous, and but half the size.

Fries describes the segments of the calyx in *V. agrestis* as nerveless, which our observation does not confirm. Reichenbach's figure shows 3 nerves. The hairs at the base and edges of the calyx are not always tipped with glands. Contrary to Fries's remark, we find the segments more frequently cut in the supposed *V. polita* than in this; and the style, which is somewhat variable in both in the proportion of its length to that of the lobes of the capsule, not more remarkably exserted in the one than in the other. In Curtis's figure of *V. agrestis*, the peculiar character of the calyx is not expressed, and the corolla (in our copy at least) is coloured of a uniform dull blue.

V. persica, (*V. arvensis* β. of the *Fl. Græca*,) described in various European Floras, under the names of *V. Tournefortii*, *V. Buxbaumii*, and *V. hospita*, and perhaps not distinct from the true *V. filiformis*, is another species nearly allied to *V. agrestis*. It is known however, at first sight, by flowers almost as large as those of *V. Chamædrys*, and is well characterized by its compressed capsule, with divaricated and sharply carinate lobes. This plant is reported to grow near Berwick-upon-Tweed. Fries observes that *V. persica* of Sprengel in his *Syst. Veg.* appears to be the true *V. agrestis*, and his *V. agrestis* partly *V. polita* and partly *V. opaca*. The last-named plant we have not yet seen. Fries propounds it, with some hesitation, as distinct from *V. agrestis*. —W. B.

October 1st 1829.

RUBUS rhamnifolius.

Buckthorn-leaved Bramble.

ICOSANDRIA Polygynia.

GEN. CHAR. *Cal.* 5-cleft. *Petals* 5. *Berry* superior, of several single-seeded *grains*, placed upon a protuberant spongy *receptacle*.

SPEC. CHAR. Stem arched, obsoletely angular and furrowed, with horizontal or deflexed straight uniform prickles. Leaves digitate, of 5 stalked, ovate or roundish, somewhat cordate, pointed leaves. Panicle spreading, twice compound. Calyx loosely reflexed.

SYN. Rubus rhamnifolius. *Weihe and Nees Rubi Germ.* 22. *t.* 6. excl. the syn. from *Engl. Bot.*—*Sm. Engl. Fl. v.* 2. 401. *Lindl. Syn. Brit.* 92.

THE elaborate Monograph of Weihe and Nees has thrown much light upon this difficult genus, but still our knowledge of the boundaries of the various species is very imperfect. That before us is common, and, unless we include forms which ought to be separated, very variable. It is nearly allied to *R. fruticosus*, *t.* 715, but differs in the following particulars.

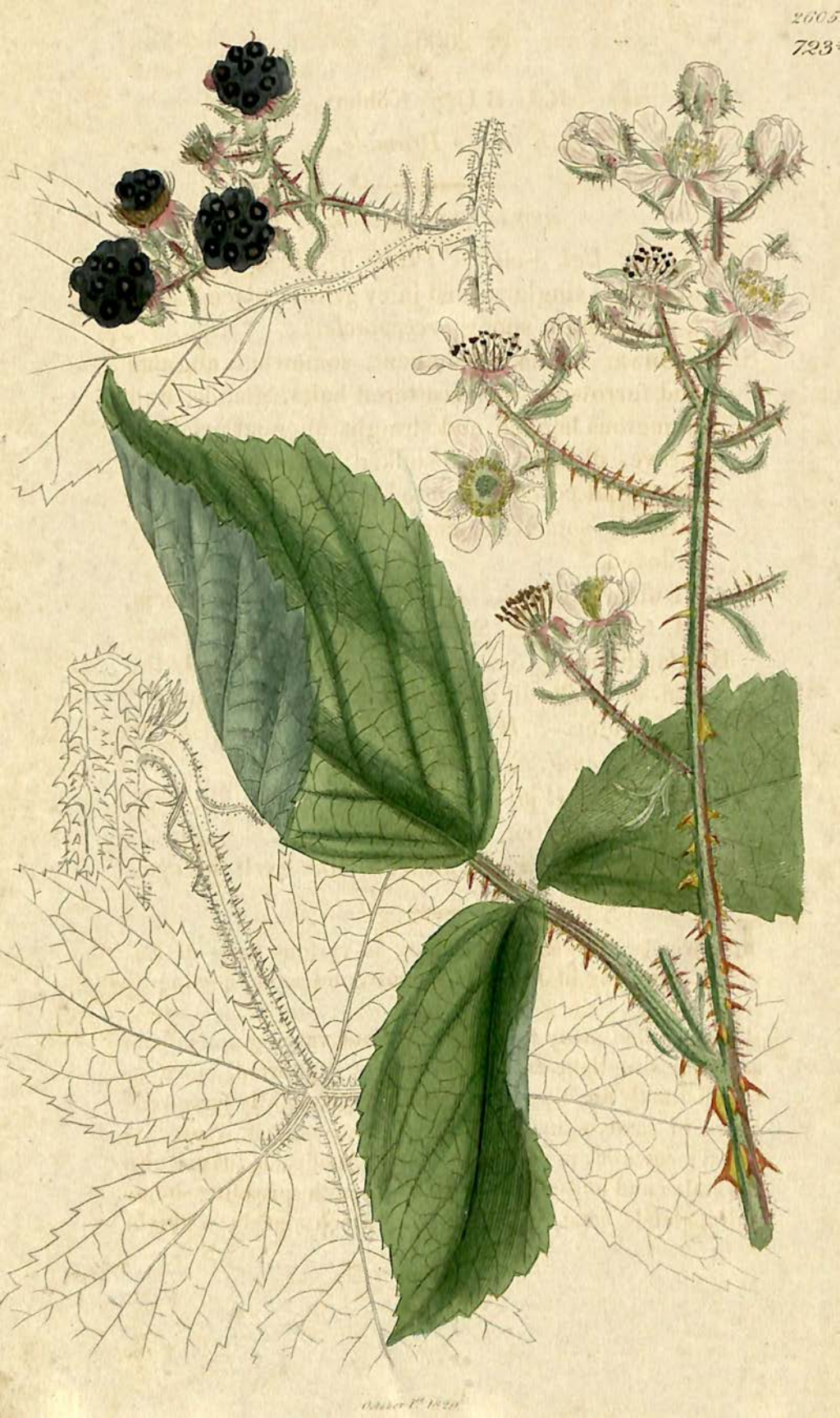
The stems are less distinctly angular and furrowed, sometimes almost cylindrical: the glaucous tinge, often very remarkable on the young shoots of that species, is never seen, we believe, in this; nor is the older wood usually of so dark a purple, but often bright red on the exposed sides, and frequently shining. The prickles are less powerful, and less dilated at the base: in both species they either stand out at right angles or are deflexed, but are rarely curved, except on the stalks and midribs of the leaves, and occasionally on the panicle. The pubescence of the stem, sometimes wanting in both, has in this, when present, a less considerable intermixture of the minute starry hairs, which in the other are usually persistent, and give a greyish appearance, especially to the angles of the stem and the bases of the prickles.

The older leaflets have an even and coriaceous appearance, as in *R. fruticosus;* but are less rigid, flat, or somewhat raised at the edges, not, as in that, decurved and arched: they are also usually of a paler green on the upper side, which in both is sometimes hairy, but more generally smooth. In this, the underside is mostly pale green, with spreading hairs, rarely white, or even hoary, except in some of the uppermost leaves. The panicle is usually less attenuated; its branches downy and hairy, but less densely so; sometimes almost green. The calyx is less closely recurved, although bent back both in flower and in fruit. The berry is more acid, and consists of fewer and rather larger grains.

The leaflets of *R. rhamnifolius* vary much in shape, but the middle one is almost always heart-shaped at the base. The partial stalks of the two lateral pairs are often but imperfectly separated; and the upper leaves of the flowering shoots are ternate. Minute sessile glands, and rarely a few setæ, are found among the down of the panicle-branches and calyx; and a few glands are occasionally sprinkled on the stem. The prickles of the ultimate flower-stalks are small, straight, and herbaceous. The calyx is generally, not always, devoid of prickles. The petals are pink or white, round or obovate, sometimes narrow. The plant flowers in July and August.

We cannot satisfy ourselves whether the author of the *English Flora* is correct or not in joining *R. cordifolius* of Weihe and Nees to the present species. The British plant which induced Mr. Lindley to give *R. cordifolius* a place in his *Synopsis*, is, we think, certainly not distinct. We know not why *R. fruticosus* of DeCandolle is referred to *R. rhamnifolius:* the description in the *Flore Française* agrees better with our *R. fruticosus.* We regard *R. discolor* of Weihe and Nees, and *R. abruptus* of Lindley, as slight varieties of *R. fruticosus*, to which species we suspect the American *R. cuneifolius* of Pursh also to belong.

The mode in which the Brambles increase by the rooting of the ends of the stems, and the separation of the young plants by the destruction in winter of the unripened part, is well explained in the Introduction to the *Rubi Germanici.* But we doubt whether the surviving part of the stem, which in the second summer bears flowering shoots, so constantly as is there intimated perishes down to the root at the end of that season.—W. B.



Octr 1st 1820

RUBUS Köhleri.

Köhler's Bramble.

ICOSANDRIA Polygynia.

GEN. CHAR. *Cal.* 5-cleft. *Petals* 5. *Berry* superior of several single-seeded juicy *grains*, placed upon a protuberant spongy *receptacle*.

SPEC. CHAR. Stem decumbent, somewhat angular and furrowed, with scattered hairs, glands, and numerous hooked and straight unequal prickles. Leaves digitate, of 5 stalked, ovate or elliptical, somewhat cordate, pointed leaves. Panicle much divided, somewhat corymbose. Calyx loosely reflexed.

SYN. Rubus Köhleri. *Weihe & Nees Rubi Germ.* 71. *t.* 25. *Lindl. Syn. Brit.* 94.

R. glandulosus. *Sm. Engl. Fl. v.* 2. 403. excl. the syn. of Bellardi, and probably of DeCandolle.

β R. fusco-ater. *Weihe & Nees Rubi Germ.* 72. *t.* 26. *Lindl. Syn. Brit.* 94.

γ R. pallidus. *Weihe & Nees Rubi Germ.* 75. *t.* 26. *Lindl. Syn. Brit.* 94.

R. affinis. *Sm. Engl. Fl. v.* 2. 405. excl. the syn.

IN woods, thickets and hedges, in various parts of England, flowering in July and August, and soon ripening its fruit.

Stems often many feet in length, but varying much from soil and situation, decumbent unless supported, more or less distinctly angular, and in general but slightly furrowed; green in shady situations, never glaucous, red where exposed; covered, in varying proportions of each, (as are also the stalks and mid-ribs of the leaves,) with spreading simple hairs, glands, setæ, and prickles, of which some are straight

and subulate, others deflexed and often curved, and in different degrees dilated at the base. Leaves frequently somewhat pedate, from the partial union of the lateral stalks. Leaflets usually thin and flexible, flat, varying in shape, sometimes almost lanceolate, cordate at the base, especially the broader middle one, irregularly serrated, sometimes deeply jagged, often terminated by a long taper point; upper side deeply sulcate in general above the nerves, as if partly folded, more or less hairy, not shining, mostly pale green; underside more hairy, and paler, occasionally grey or even hoary. Leaves of the flowering shoots mostly ternate. Panicle large, twice or thrice compound; its branches divaricated, variously hairy, glandular, and prickly, as is likewise the calyx, which is bent back more or less whilst in flower; often more spreading when in fruit; its inside usually stained with red; its points either short and acute, or elongated and leafy. Petals generally small, white or pale pink, crumpled, often irregularly jagged, varying from strap-shaped with a slender claw, to obovate or almost round. Berry black, shining, acid; grains numerous, rather small, often unequal.

Sir J. E. Smith, misled by an imperfect specimen, (in this genus peculiarly deceptive,) published the plant before us as the *R. glandulosus* of Bellardi, a species which appears from the original description, confirmed in *Rubi Germanici*, to have its leaves all ternate. The authors of that work have distinguished as species several varieties, as we think them, of the *R. Köhleri*. Two of these we quote above, referring to our γ, with Mr. Forster's concurrence, the *R. affinis* of Smith. *R. rudis* of Weihe and Nees, and the plant which, after Waldstein and Kitaibel, they call *R. hirtus*, we have not seen of British growth.

The trivial name which we adopt is given to the first of the quinate-leaved "*Rubi glandulosi*" in the German work; the authors wishing to commemorate by it the attention paid by one of their coadjutors, a Silesian clergyman, to the Brambles of his country.—W.B.

October 1st 1829.

CALLITRICHE autumnalis.

Autumnal Water-starwort.

MONANDRIA Digynia.
(rather *MONŒCIA MONANDRIA.*)

GEN. CHAR. *Cal.* none. *Petals* 2, inferior. *Seeds* 4, naked, compressed. Some flowers separated. —*Sm.*

SPEC. CHAR. Leaves all submerged, linear, retuse, single-ribbed, compactly cellular: petals none.

SYN. Callitriche autumnalis. *Linn. Sp. Pl. p.* 6. *Willd. Sp. Pl. v.* 1. *p.* 29. *Wahl. Lapp. p.* 2. *Sm. Engl. Fl. v.* 1. *p.* 10.

C. aquatica γ. *Sm. Fl. Brit. v.* 1. *p.* 9. *Engl. Bot. t.* 722. *Hook. Scot.* 1. *p.* 259.

WHETHER there be two distinct species of *Callitriche* in this country or not, we will not take upon us to say. It is very certain that the early-flowering kind, with its broad, floating, 3-nerved leaves, is very different in appearance from that which comes to perfection at a later period of the year. The former, now called *C. verna*, is admirably figured at *t.* 722 of this work. The latter, *C. autumnalis*, we now propose to illustrate, a small portion of it only having been represented on the same plate with *C. verna*, *t.* 722.

In this we find the same general habit and mode of growth as in *C. verna*, and the same disposition to vary in regard to size. The leaves are all of them sessile, linear, of a dark green colour, opaque, with a central rib and a texture formed of cells so minute and compact that they are scarcely visible with a good microscope: the extremities are obtuse or, more generally, retuse, and even emarginate. The single nerve or rib, we should observe, exists equally in the lower and linear leaves of *C. verna*. In *C. autum-*

nalis the flowers seem to be constantly monœcious, and both stamen and pistil destitute of floral covering. Fruit on a short peduncle, larger than in *C. verna*, orbicular, compressed, of 4 lobes, or seeds as they are called, which are also compressed and have a sort of transparent margin.

The specimens here figured were communicated by Mr. Borrer, from a ditch at Amberley, Sussex, between the Castle and the Wild Brook, where they grew at the bottom of deep water, even while flowering, in June 1826. Plants raised from their seeds were cultivated by Mr. Sowerby for two years, and found to preserve all the characters of the parent; never producing floating leaves either in spring or summer, and never rising to the surface of the water. The species has been found also near London by Petiver, and in Clunie Loch, Scotland, by Mr. Arthur Bruce. Mr. Wilson finds it in a beautiful state in the outlet of Llyn Maclog, Anglesea. The same gentleman has sent me *C. verna* without the broad floating leaves; but the linear leaves have the loose reticulation of that species, and are narrower than in *C. autumnalis*.—W. J. H.

The delicate transparency of the stem in the Sussex specimens, and in the produce of their seeds, has particularly struck us when comparing them with the varieties of *C. verna* at all seasons.

Fig. 1.

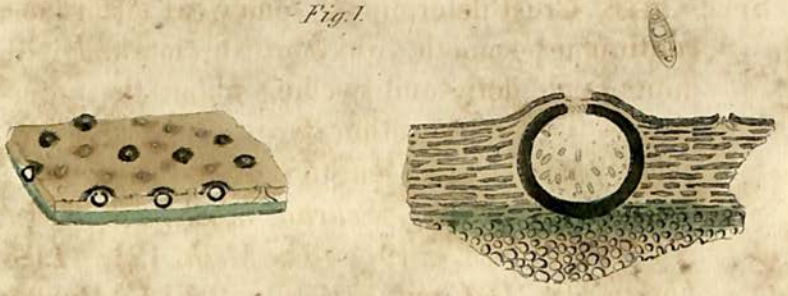


Fig. 2.

Verrucaria nitida. Fig. 1.

_____ dermatodes. Fig. 2.

October 1st 1829.

2607. (Fig. 1.)

VERRUCARIA nitida.

Wax-like Verrucaria.

CRYPTOGAMIA Lichenes.

GEN. CHAR. *Tubercles* of a different nature from the thallus, simple, convex, not expanding, but furnished with a central pore, and inclosing a somewhat gelatinous nucleus.

SPEC. CHAR. Crust determinate, somewhat tartareous, continuous, smooth, waxy brown, marked with minute pale dots, and swelling about the tubercles. Tubercles rather large, hemispherical, black, immersed; at length partially exposed.

SYN. Verrucaria nitida. *Schrad. in Schrad. Journ. A. D.* 1801. *fasc.* 1. 79. *Ach. Meth.* 121. *Lich. Univ.* 279. *DeCand. Fl. Fr. v.* 2. 316. *Purton. v.* 3. 160. *Grev. Edin.* 352.

Pyrenula nitida. *Ach. Syn.* 125.

Lichen populneus. *Ach. Prod.* 17.

Sphæria nitida. *Weigel Obs.* 45. *t.* 2 *f.* 14. *Dicks. fasc.* 1. 23. *With. v.* 4. 293. *Sowerby Engl. Fungi. v.* 3. *t.* 275.

A VERY distinct species, not uncommon on smooth bark, particularly on that of young ash-trees.

The perfectly continuous, thin, but slightly tartareous crust spreads 2 or 3 inches, when uninterrupted, with an oblong outline, and without any remarkable border: but very frequently many plants are crowded together in an extensive map-like patch, in which the limits of each individual are marked by a black or brown line. The surface is seldom polished, but of a remarkable oily or wax-like appearance, constantly sprinkled more or less abundantly with minute pale dots. Its colour is a darker or

paler brown, tinged in different plants with yellow, green, or grey, and often obscured by a greyish film. The tubercles vary much in size, being occasionally as large as rapeseed, but usually much smaller. They are completely immersed at first, and sometimes even when full grown; the crust forming little protuberances above them; more usually they gradually emerge, and are sometimes polished and of a full black, sometimes brownish or greyish, as if covered with film. A small grey dot marks their apex. Their nucleus when wet is dark grey and gelatinous, and fills the shell: in drying, it shrinks much and becomes black. The shell incloses it on all sides; hence the plant is a *Pyrenula* of Acharius.

V. maxima of the *Flore Française* is this species with tubercles of the largest size.—W. B.

2607. (Fig. 2.)

VERRUCARIA dermatodes.

Vellum-like Verrucaria.

CRYPTOGAMIA Lichenes.

GEN. CHAR. *Tubercles* of a different nature from the thallus, simple, convex, not expanding, but furnished with a central pore, and inclosing a somewhat gelatinous nucleus.

SPEC. CHAR. Crust determinate, between filmy and tartareous, continuous, very smooth, cream-coloured, swelling about the tubercles. Tubercles hemispherical, black, immersed; at length exposed.

FOUND on trees in Ireland; near Bantry by the late Miss Hutchins, and near Killarney by the late Sir T. Gage, Bart. It grows in patches of considerable extent, bounded by a narrow black line. Miss Hutchins observed the living plant to be constantly suffused with a reddish tinge, probably of an extraneous nature, of which some traces remain on our long-dried specimens.

This Lichen, particularly in the state figured at *b* (which we presume we are correct in regarding as the same species as that at *a*), is very liable to be confounded, by a hasty observer, with *V. epidermidis* as it usually grows on birch-trees, and still more with a variety of similar hue which sometimes spreads widely over the trunks of young ash-trees in woods. In the real nature of the crust, however, and the formation of the tubercles within it, the present species much more resembles *V. nitida*, although not in the structure of the tubercles, the shell of which does not, as in that, inclose the base of the nucleus. From that Lichen the colour, and the remarkable vellum-like appearance of its thinner and polished crust, distinguish it at first sight. The entire want of dots on the surface affords also,

on closer examination, a satisfactory specific distinction. As the tubercles within the crust enlarge, a smooth roundish wart rises above each, not much unlike, except in size, to those of *Lichen ceuthocarpus*, *t.* 2372. When the apex of the tubercle begins to emerge, a bluish cloud is often observable around it, caused by the black shell under the filmy surface of the crust. At length the tubercle is completely denuded, but not much raised above the crust, which sometimes forms a little socket around its base. It is now of a full polished black, and shows at the centre a minute, circular, or occasionally irregular, pore, through which the pale nucleus is often perceptible.—W. B.

PRIMULA scotica.

Scottish Primrose.

PENTANDRIA Monogynia.

GEN. CHAR. *Caps.* of 1 cell opening with 10 teeth. *Cor.* salver-shaped; tube cylindrical; throat open. *Stigma* globular.—*Sm.*

SPEC. CHAR. Leaves obovato-lanceolate, mealy, slightly toothed. Calyx swollen; limb of the corolla plane, with glands at the mouth; the segments broadly obcordate, close.

SYN. Primula scotica. *Hook. in Fl. Lond.* (*N.S.*) *t.* 133. *Sm. Engl. Fl. v.* 1. 272. (excl. the syn. of *Fl. Dan.* P. stricta.)

THIS rarity seems to occupy the place of *Primula farinosa*, in the extreme northern part of the mainland of Scotland and in the Orkney Islands, where alone it has yet been found. It is unquestionably the plant alluded to under the name of *P. farinosa*, by Lightfoot, as growing between Bighouse and Armidale, Sutherland: and it is the "*dwarf variety*" of that plant mentioned in *Flora Scotica* as being found by Messrs. Borrer and Hooker in Orkney. I at first mistook it for a variety of *P. farinosa*: nor was it till I received beautiful specimens from Mr. Gibb of Inverness, gathered near Thurso, and till I saw it cultivated extensively and for a succession of years, that I was satisfied it was a distinct species. The two are, however, decidedly and permanently distinct. In our present plant the leaves are shorter, broader, less serrated or toothed; the calyx is strikingly different, being shorter and vastly more swollen; and the corollas are not only remarkably unlike in colour, (of a deep purple,) but in the breadth of the segments and their approximation; and the mouth of the corolla too is

distinctly toothed or glandular. Indeed the aspect of this plant is more like *Primula Auricula*. It flowers in July, always considerably later than *P. farinosa*.

I am not aware that *P. farinosa* is found much, if at all, further north in Scotland than Edinburgh.—W. J. H.

Our figure is necessarily taken from a plant reared in the garden of the Apothecaries' Company at Chelsea, where it flowered late in April; it is but a trifle larger than a dry one from Orkney now before us. In two other Orkney specimens the stem that supports the flowers is extremely short; it lengthens gradually as the flowering and fruiting advance.

POTAMOGETON acutifolius.

Sharp-leaved Pond-weed.

TETRANDRIA Monogynia.

GEN. CHAR. *Pet.* 4. *Cor.* none. *Seeds* 4, naked, sessile.—*Sm.*

SPEC. CHAR. Leaves all submersed, linear, acuminate, with three principal and numerous close, parallel, intermediate nerves occupying the whole surface. Spikes oval, compact, about equal in length with the short peduncle.

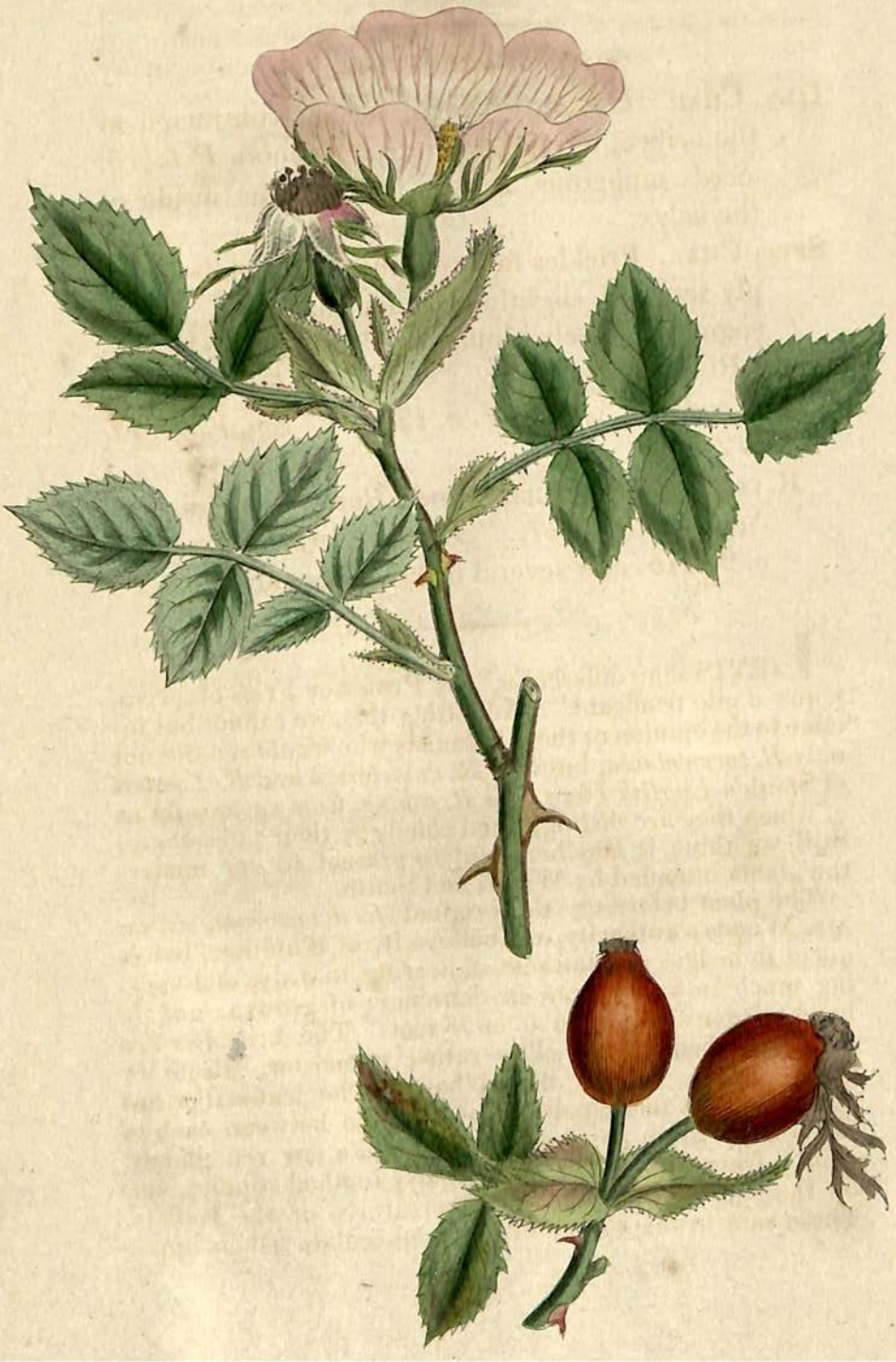
SYN. Potamogeton acutifolius. *Link in Roem. & Schultes Syst. Veget. v. 3.* 513. *Mert. & Koch. Deutsch. Fl. v.* 1. 854. *Reich. Iconogr. t.* 176. (excellent.) *Cham. & Schlech. in Linnæa. v.* 2. 180. *t.* 4. *f.* 10.

CHAMISSO and Schlechtendal, in an excellent Memoir on the *Alismaceæ* found during the Russian voyage of discovery that was undertaken at the cost and under the direction of Count Romanzoff, have given a new arrangement of the genus *Potamogeton*, and have shown that the *nerves* of the leaves, especially in those whose leaves are *linear*, afford excellent characters. Guided by this rule, which, as far as our observations have gone, seems to be a very important one, those authors have referred the *P. compressum* of *Engl. Bot. t.* 418. to *P. pusillus*, a variable species indeed, but distinguished by its 3—5-nerved leaves, with only a few *central* intermediate ones. Two species, natives of Britain, allied to this in habit, are remarkable for having, besides the 3 principal nerves, *numerous* other *intermediate* ones or *striæ* occupying the whole surface. Of these again one, *P. zosterifolius* of Schumacher, (*P. cuspidatum* of Schrader and *Engl. Flora*,) is distinguished by its

relatively large size, its broad foliage, suddenly coming to a point, and the great length of its flower-stalk; while the other is here characterized as *P. acutifolius*.

The present plant has not, as far as I am aware, been found in this country except by Mr. Borrer, who gathered the specimens here figured in marsh ditches at Amberley, Henfield, and Lewes, Sussex, in June 1826.

The *P. zosterifolius* we possess from the Scottish station mentioned in *English Flora*. It entirely agrees with the description in the *Linnæa*, and with the figure of Reichenbach.—W. J. H.



ROSA dumetorum.

Thicket Rose.

ICOSANDRIA Polygynia.

GEN. CHAR. *Cal.* urn-shaped, fleshy, contracted at the orifice, terminating in 5 segments. *Petals* 5. *Seeds* numerous, bristly, fixed to the inside of the calyx.

SPEC. CHAR. Prickles falcate, uniform. Leaflets simply serrated, slightly hairy on both sides. Calyx segments loosely pinnate. Fruit elliptical.

SYN. Rosa dumetorum. "*Thuill. Paris.* 250." *Woods Tr. of L. Soc. v.* 12. 217. *Sm. Engl. Fl. v.* 2. 392.

R. canina dumetorum. *Lindl. Ros.* 99. *Fries Nov. Suec. ed.* 2. 147. *Desv. Journ. Bot.* 1813. *v.* 2. 115. and several of his other varieties.

"LEVIS sanè differentia," as Professor Fries observes, "quæ e pilo pendeat!" Admitting this, we cannot but incline to the opinion of those botanists who would reunite not only *R. sarmentacea*, but also *R. dumetorum* and *R. Forsteri* of Smith's *English Flora* with *R. canina*, from various forms of which they are distinguished chiefly by their pubescence. Still we think it may be useful to present to our readers the plants intended by Woods and Smith.

The plant before us, the original *R. dumetorum*, as, on Mr. Woods's authority, we believe it, of Thuillier, is frequent in hedges and thickets, flowering in July, and varying much in vigour and in denseness of growth, and in height from about 4 to 6 or 8 feet. The branches are usually arched; the prickles rather numerous, falcate or more hooked, with a dilated base. The leaf-stalks are downy, with a small pale falcate prickle between each of the usually three pairs of leaflets, and a few red glands, such as fringe also the narrow slightly toothed stipules, and tip the simple, often unequal, serratures of the leaflets. These vary in shape from ovate to lanceolate; their upper

surface is somewhat shining, yet not of a bright green, with a few inconspicuous, depressed hairs; beneath they are paler and more hairy. In most instances they are remarkably flat, like those of *R. Borreri* of Woods, and his *R. surculosa* (the *R. canina* β. of *English Flora*). To both of these our plant bears a strong general resemblance: it agrees with them also in the usual presence of soft hairs, or feeble setæ, on the flower-stalks, and in the rather small size and pale colour of the flowers. It differs from the former by the simply serrated leaves; from the latter by their pubescence; from both by the longer and less closely set pinnæ of the calyx. Its styles are hairy, sometimes, not always, as much protruded as those of *R. surculosa*. Its fruit is elliptical, scarlet, pulpy when ripe.

The foliage of this Rose is usually devoid of any glaucous tinge: there is however a variety with both twigs and leaves highly cæsious, which yet assimilates better with it than with *R. Forsteri*, in prickles, number and pubescence of the leaflets, and glands on the leaf-stalks. This variety has flowers of a beautiful full pink.

To our former *R. dumetorum* we would now assign the following name and synonyms:

ROSA inodora. (2579.)

R. inodora. "*Fries Fl. Halland.* and *Nov. Suec. ed.* 1." from his *Nov. Suec. ed. 2. Ser. in DeCand. Prod. v. 2.* 617.

R. Borreri. *Woods Tr. of L. Soc. v.* 12. 210. *Sm. Engl. Fl. v. 2.* 388.

R. dumetorum. *Engl. Bot. v.* 36. 2579. excl. the incorrect reference to Persoon.

R. rubiginosa inodora. *Lindl. Ros.* 88. and *Fl. Lond.*—*Wahl. Fl. Suec.* 313. *Fries Nov. Suec. ed. 2.* 149.

Although the leaves are not perfectly scentless, we believe this the plant of Fries, and would therefore restore the original name. We think it essentially different from *R. rubiginosa* in habit, prickles, leaves, calyx and fruit. The leaves indeed are rarely without glands, and there occurs, in Scotland and the North of England, a little-known variety, in which the underside of the leaf is thickly sprinkled, and the calyx-segments are longer and remain on the ripening fruit.—W. B.

ROSA Forsteri.

Forsterian Rose.

ICOSANDRIA Polygynia.

GEN. CHAR. *Cal.* urn-shaped, fleshy, contracted at the orifice, terminating in 5 segments. *Petals* 5. *Seeds* numerous, bristly, fixed to the inside of the calyx.

SPEC. CHAR. Prickles slightly falcate, uniform. Leaflets simply serrated, carinate, smooth above, hairy beneath. Calyx-segments copiously pinnate. Fruit between elliptical and globular.

SYN. Rosa Forsteri. *Sm. Engl. Fl. v.* 392.
R. collina β. *Woods Tr. of L. Soc. v.* 12. 219.

FIVE to eight, sometimes ten feet high; of stout and rather dense growth. Prickles rather numerous, slightly curved, their base in general but little dilated. The leaflets are 5 more frequently than 7, closely set, ovate, somewhat keeled, mostly rugose, and often twisted: their upper-side pale green when young, dark when old, in all stages suffused with a glaucous tinge; their underside paler, with hairs on the nerves and veins: the serratures are often irregular, but in general quite simple, with points glandular when young, afterwards callous. The leaf-stalks and stipules are as in *R. dumetorum*, except that the former are not sprinkled with glands. The ends of the young shoots are remarkably tinged with brown. The leaf next the flowers is usually obliterated, its stipules coalescing into a broad ovate or lanceolate concave bractea, mostly longer than the short bare flower-stalks. The tube of the calyx is oblong, rather short; its segments fully pinnate; the pinnæ lanceolate, toothed, sometimes pinnatifid, each tooth tipped with a minute gland. The petals are but little longer than the calyx, pale pink, or often white; less

showy, perhaps, than in any other of our wild Roses. The styles are scarcely protruded, slightly hairy. The fruit is bright scarlet, pulpy when ripe, and loses early the segments of the calyx.

Such is the plant we have figured, *R. collina* β. of Woods, *R. Forsteri* α. of Smith, as it occurs, not very frequently, in hedges and thickets in Sussex. It is in itself of very peculiar aspect; but we find various gradations between it and *R. dumetorum*. Of these, *R. collina* γ. of Woods is a more common and considerably dissimilar briar, much more like *R. canina*, &c. in habit, its branches being longer, slender, and arched. Its leaflets are mostly 7, smaller, more elliptical, less crowded, not glaucous, but of a pale green, not unlike that of the Sweet Briar, and, as in that also, they are often remarkably concave. The serratures are frequently almost double; and a few glands are scattered on the leaf-stalks, which are often without prickles. Hairs are sometimes found on the upper surface of the leaflets, as in *R. dumetorum*, and the flower-stalks are occasionally beset with soft hairs, more rarely with feeble setæ. We have specimens of this from continental botanists as *R. collina* of Jacquin.

Whether Jacquin's Rose just mentioned be really a different species or not, we cannot pretend to decide between the late Sir J. E. Smith and Mr. Woods, who came to opposite conclusions from the consideration of the same authentic specimen. The figure in the *Flora Austriaca* would lead us to regard it, with Mr. Woods, as differing from our first variety only by the setæ on the flower-stalks, a character now known to be of no importance. A plant sent by the younger Jacquin to the garden of the Horticultural Society, is most like a luxuriant variety of *R. dumetorum;* although its leaves, which are not glaucous, have hairs on the under surface only. With *R. bractescens* of Woods we hope to become better acquainted.

R. collina of *Engl. Bot. t.* 1895, is now generally known as *R. systyla*; but it is not, according to later information acquired by Mr. Woods, the plant originally so named by Bastard.—W. B.

Fig. 1.

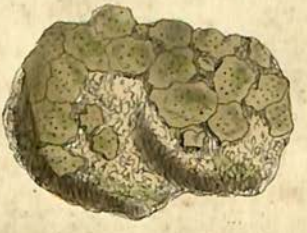


Fig. 2.

Endocarpon psoromoides Fig. 1.

_____ sorediatum Fig. 2.

November 1st 1829.

2612. (Fig. 1.)

VERRUCARIA psoromoides.

Leafy Bark Verrucaria.

CRYPTOGAMIA Lichenes.

GEN. CHAR. *Tubercles* of a different substance from the thallus, simple, convex, not expanding, but furnished with a central pore, and inclosing a somewhat gelatinous nucleus.

SPEC. CHAR. Scales between tartareous and leafy, small, crowded, somewhat imbricated, appressed, lobed, waved, tumid, olive-green, with slightly elevated, crenate, whitish, downy edges; underside black and spongy. Tubercles immersed, nearly globular, pale, except the slightly prominent blackish-brown apex.

PROBABLY a rare species. As far as we are aware, it has been found only on elm-bark at Hurstpierpoint, and on ash at Beeding, Sussex. With the single exception of *V. pulchella, t.* 2602. *fig.* 1, which occurs almost invariably on moss, not on the bark itself, no other leafy, or even frustulose *Verrucaria* has been observed to grow on trees.

It forms irregular patches, of a very uneven surface, and an inch or two, or often much less, in width, composed of crowded, variously tumid, undulated and contorted, sometimes confluent scales, of irregular figure, and cut at the edges into rounded lobes, which vary in depth, and are usually again crenate. Although thin they are somewhat tartareous; their internal substance is white, with a narrow layer of green; their surface, dull olive-green when wet, browner, with more or less of a grey and pruinose appearance, when dry. It differs from its nearest affinity, *V. pallida, t.* 2541, in its less truly imbricated and more appressed mode of growth, the edges only of the scales being slightly

raised; in the really fibrous texture of the underside; and, in some degree, in the figure of the scales and in the incisions of their edges; and not less in the tubercles. These, in the present species, have in the immersed part a thin perithecium, of no darker colour than the nucleus; such, we presume, as Acharius held essentially characteristic of a genuine *Endocarpon*; whilst those of *V. pallida* have, in every part, a thick black shell. In this respect *V. sorediata* (see our next page) agrees with *V. pallida*; and it further differs from *V. psoromoides* by the peculiar apex of its tubercles, by the larger scales of its thallus, and their much more downy or, rather, spongy edges. *Endocarpon muscorum* of Persoon, *Ach. Lich. Univ. p.* 300, is joined to *E. pallidum* by Acharius in his *Synopsis*.

Our trivial name alludes to the general resemblance of the plant to some of the *Lecanoræ* and *Lecideæ*, of which Acharius, in his *Prodromus*, formed the tribe *Psoroma*. To this tribe both *V. psoromoides* and *V. pallida* might well be referred were the tubercles unknown.—W. B.

2612. (Fig. 2.)

VERRUCARIA sorediata.

Powdery-specked Leafy Verrucaria.

CRYPTOGAMIA Lichenes.

GEN. CHAR. *Tubercles* of a different substance from the thallus, simple, convex, not expanding, but furnished with a central pore, and inclosing a somewhat gelatinous nucleus.

SPEC. CHAR. Scales between tartareous and leafy, rather wide, mostly scattered, appressed, flat, irregularly orbicular, lobed, olive-green; underside brownish; edges slightly elevated, notched, spongy, pale grey. Tubercles black, immersed except the powdery blackish-grey apex.

ANOTHER very distinct species of the *Endocarpon* tribe. It was discovered, more than twenty years ago, by Mr. Dawson Turner, on mud-walls at Thetford; where it is very inconspicuous, when dry, from the close resemblance of its pale grey-brown colour to that of the substance on which it grows, although individual scales often attain the width of a quarter of an inch, and they are sometimes clustered into considerable patches. When wet, the living plant is of a dull olive-green. There is something peculiar in the narrow parallel notches of the edges, and in the grey felt-like down which forms about them, especially in young plants, a narrow border. This part is usually a little raised and crisped, and occasionally the scales are slightly imbricated; the rest of the thallus is closely appressed, and, with the exception of little tumid lines at the sinuses of the larger lobes, is not otherwise uneven than as it follows the inequalities of the subjacent soil. The underside is brownish, or blackish, and appears to be covered throughout with a substance similar to that found at the edges; but it is difficult to determine

whether the fibrous appearance in the central parts belongs really to the plant or to the soil. The internal substance is green under the brown superficial coat, and whitish towards the base. Were all other distinction wanting, the plant would be strongly marked as a species by the singular nature of the apex of the tubercles, which, from its minuteness, and the similarity of the colour to that of the thallus, is perceptible only on close inspection by the naked eye, but, under a glass, has, when perfect and in a dry state, altogether the appearance of a little flat grey *soredium* *. When wet, it is rather more protuberant, and presents a very narrow black ring surrounding a grey point. The tubercle itself is globular or slightly conical, and occupies the whole thickness of the thallus. The shell is black, thickest towards the apex, and filled with, and investing in every part, a colourless jelly-like nucleus, which contains most minute clavate thecæ, and shrinks in drying into a scarcely discernible whitish film.—W. B.

* See *Ach. Meth. Lich.* p. xxi.

December 1st 1829

DIGITARIA humifusa.

Glabrous Cock's-foot Finger-grass.

TRIANDRIA Digynia.

GEN. CHAR. *Cal.* of 2—3 very unequal, close-pressed, awnless valves. *Cor.* of unequal, depressed, awnless valves. *Seed* coated with the hardened *corolla. Sm.* (Florets on a one-sided spike.)

SPEC. CHAR. Leaves and sheaths glabrous; florets ovate, pubescent.

SYN. Digitaria humifusa. *Pers. Syn. Pl. v.* 1. 85. *Fries Nov. Suec.* 7. *Hook. Brit. Fl. ined.* 58.

D. glabra. *Dumort. Agrost. Belg.* 137. *t.* 13. *f.* 31.

Syntherisma glabrum. *Schrad. Fl. Germ. v.* 1. 163. *t.* 3. *f.* 6.

Panicum sanguinale. *Wahl. Fl. Suec.* 34.

THE specimen here represented was gathered by Miss Molesworth at Weybridge, Surrey, growing among loose sand, a station where it had long been known to exist by Mr. Borrer. That gentleman thinks it probable that most, if not all, of the stations given to *D. sanguinalis* in *English Flora*, except that of Battersea, belong to this species. The Ipswich *D. sanguinalis*, he says, is certainly this.

The present plant is generally of a very purplish hue. It has seldom more than three or four spikes, growing together, and is specifically distinguished by its glabrous leaves and sheaths, and by the ovate, not oblong, florets. The stems are many, springing from the same fibrous annual root, more or less procumbent. Leaves short, linear-lanceolate, acuminate, glabrous, as well as the large and conspicuous and often swollen sheaths, and quite smooth to the touch. Spikes ternate, or quaternate. Rachis with a broad, membranaceous, striated wing, rough at the margin. Florets generally in pairs, one on a short, the other upon a longer,

nearly glabrous pedicel. Outermost valve of the calyx a small membranous, glabrous, blunt scale: the two inner calycine valves are nearly equal in size, ribbed and downy, ovate. Corolla of 2 dark-purple shining valves, externally beautifully dotted in lines; the outer one embracing the inner one, as the latter does the seed eventually: so that the seed is invested with the hardened corolla. Both the valves have their involute margins pale and membranaceous.

The specific character and synonyms of *Digitaria sanguinalis* should stand thus:

DIGITARIA sanguinalis.

Hairy Cock's-foot Finger-grass.

SPEC. CHAR. Leaves and sheaths hairy; florets oblong, nearly glabrous, their margins scabrous.

Digitaria sanguinalis. *Scop. Carn. v.* 1. 52. *Engl. Flor. v.* 1. 96. *Hook. Brit. Fl.* 57.

Panicum sanguinale. *Linn. Sp. Pl.* 84. *Curt. Lond.*—*Engl. Bot.* 849.

Syntherisma vulgare. *Schrad. Fl. Germ. v.* 1. 161.

WE learn from Fries and Wahlenberg that this plant is not a native of Sweden, the species inserted in the Appendix to *Fauna Suecica*, under the name of *Panicum sanguinale*, being *D. humifusa*, which Linnæus did not distinguish from his original *P. sanguinale*.—W. J. H.

December 1st 1829

VICIA angustifolia.

Narrow-leaved Crimson Vetch.

DIADELPHIA Decandria.

GEN. CHAR. *Style* bearded in front below the stigma. *Stam.* nine united, one free.

SPEC. CHAR. Flowers solitary, nearly sessile; leaflets linear, lower ones inversely heart-shaped; stipules with a pale depression beneath; seeds orbicular, smooth. *Sm.*

SYN. Vicia angustifolia. "*Sibth.* 224." (but, according to Smith, not of Roth, Willdenow, or Rivinus.) *Engl. Fl. v.* 3. 282.

V. sativa γ. *Fl. Brit.* 770.

V. sylvestris, flore ruberrimo, siliquâ longâ nigrâ. *Raii Syn.* 321.

V. lathyroides. *Dicks. Hort. Sicc. fasc.* 4. 12.

IT will be satisfactory to the British botanist to know what is the *V. angustifolia* of Sir J. E. Smith in *English Flora*; and we have now the pleasure of figuring it upon the authority of specimens gathered by Mr. Borrer at Henfield, Sussex, in a flowering state, in the month of June 1829. It will be seen that our specimen has the upper flowers growing in pairs, notwithstanding the remark of Sir J. E. Smith:—"The flowers, I believe, are always solitary: those who describe them otherwise have confounded this species with variety β of *V. sativa*."

We have, in the above list of synonyms, confined ourselves to such as are enumerated by Smith himself; or we should at least have included the *V. sativa* γ. *angustifolia* of DeCandolle's *Prodromus, p.* 361. and of Duby's *Botanicum Galli-*

cum, p. 152.—but they refer to Roth's *V. angustifolia*, which the author of *English Flora* says is not our plant.

We have ourselves frequently gathered, both in England and in Scotland, a Vetch perfectly according with the present figure, and with Smith's description, often having every flower solitary; but which has always appeared to us to be a starved state of *V. sativa:* and we cannot help expressing it as our opinion, that it would be better, as Smith himself has done in *English Botany*, and in *Flora Britannica*, to consider it as a state of *V. sativa*. From *V. lathyroides*, our plant may be known by the discoloured spots on the stipules, and the dotted, not smooth, seeds.—W. J. H.

December 1st 1829.

LOTUS tenuis.

Slender Bird's-foot Trefoil.

DIADELPHIA Decandria.

GEN. CHAR. *Legume* cylindrical, spongy within. *Wings* converging at their upper edges. *Filam.* partly dilated.

SPEC. CHAR. Heads of few flowers. Stems recumbent, nearly solid. Legumes somewhat spreading, cylindrical, two-edged. Calyx hairy; its teeth shorter than the tube.—*Sm.*

SYN. Lotus tenuis. *Waldst. & Kitaib. in Willd. Enum.* 797. *Spreng. Syst. Veg. v.* 3. 281.

L. decumbens. *Forst. Tonbr.* 86. *Sm. Engl. Fl. v.* 3. 314. (not of Poiret and of Seringe.)

L. depressus & humifusus. *Willd. Enum. Suppl.* 52. from *Link Enum. v.* 2. 265. (according to Seringe.)

L. corniculatus, *var.* tenuifolius. *Pollich. Fl. Pal. n.* 711. *Willd. Sp. Pl. v.* 3. 1395. *Ser. in DeCand. Prod. v.* 2. 214. *Fries Nov. Suec.* 235.

L. Forsteri. *Sweet Hort. Brit. v.* 1. 118.

L. pentaphyllos minor angustioribus foliis fruticosior. *Raii Syn.* 334.

WE are indebted to Mr. Borrer for several of the above synonyms, and for the specimen here figured, which was gathered in August 1828, in Sussex, where it is not rare in waste places, and on a clayey soil. The same gentleman also observes to us that it is abundant in meadows below Cook's Folly, near Bristol, and that it is probably the *L. diffusus* of Turner and Sowerby, in *Trans. of Linn. Soc. v.* 5. *p.* 238. Ray says it grows in cornfields and in moist

places. The late Mr. T. F. Forster, after whom Sir J. E. Smith adopted it as a species, found it at Hastings and near Tonbridge; and Mr. Grubb has gathered it at Walton, Essex. In Scotland it has been found near Forfar, by the late Mr. Don; at Ratho, by Mr. Maughan; and at Hopeton Park, near Edinburgh, by Mr. Christy.

Mr. Maughan's specimens, now before us, have the leaves much narrower than they are in the individual here figured, some of them even between linear and setaceous; whilst other plants, especially cultivated ones from Hungarian seeds, and wild ones from Switzerland, are furnished with leaves which more nearly approach those of the common *L. corniculatus*, t. 2090, with which many botanists have, perhaps justly, united it. We can see no marks of distinction in the flowers or fruit, nor, indeed, any but those afforded by the more branched and straggling habit of the plant and the slenderness, or narrowness, of all its parts. The umbels are usually of fewer flowers. Professor Fries finds it in Scania, with *L. corniculatus* and *L. major* of Smith, *t.* 2091, and observes that the three grow intermixed, "*sine transitu;*" yet he speaks of them as but varieties. Mr. Borrer, who is more inclined to regard *L. tenuis* as distinct from *L. corniculatus*, admits that the flowers present no sufficient distinction; the claw of the vexillum being gibbous, as in that, from a transverse inflation at its upper part, not merely arched longitudinally as in *L. major*, and the calyx having neither the difference of shape nor the teeth divergent before flowering, which, with some less important differences, distinguish, satisfactorily as he thinks, the plant last mentioned. These characters in the vexillum and calyx were first pointed out by the Rev. Dr. Beeke, Dean of Bristol, who well explains them in a note in Turner and Dillwyn's *Botanist's Guide*, *p.* 528, where the name of *L. gibbus* is proposed for *L. corniculatus*, and that of *L. pilosus* for *L. major*. The plant now before us he pronounces a variety of the former species.—W. J. H. and W. B.

Woodsia Ilvensis

WOODSIA ilvensis.

Oblong-leaved Woodsia.

CRYPTOGAMIA Filices.

GEN. CHAR. Clusters of fructification roundish. *Involucre* cup-shaped, open above, the margin cut into many often capillary segments, including pedicellated capsules; raised receptacle none.

SPEC. CHAR. Leaflets oblong, deeply pinnatifid, with many oblong segments, beneath, rachis and stipes chaffy.

SYN. Woodsia ilvensis. *Br. in Tr. of Linn. Soc. v.* 11. 173. *Engl. Fl. v.* 4. 322. *Spreng. Syst. Veget. v.* 4. 125.

Acrostichum ilvense. *Linn. Sp. Pl. ed.* 2. 1528. *Fl. Dan. t.* 391. (bad.)

Polypodium ilvense. *Swartz. Syn. Fil.* 39. *Willd. Sp. Pl. v.* 5. 198. *Schkuhr Fil. t.* 19.

Nephrodium lanosum. *Mich. Am. v.* 2. 270.

N. rufidulum. *Mich. Am. v.* 2. 269.

Filix alpina, Pedicularis rubræ foliis subtus villosis. *Raii Syn.* 118.

THE above synonym of Ray, Mr. Wilson is decidedly of opinion, refers to *W. ilvensis* rather than to *W. hyperborea*, under which Sir James Smith has included it; and the character is indeed admirably expressive of this species. Thus Mr. Lhwyd was the first discoverer of this very rare plant, upon Clogwyn y Garnedh, "a precipice immediately below the highest peak of Snowdon, which faces the east (not the northwest as stated in Ray)." (*Wilson.*) Mr. Wilson finds it at Twll Dû, the Botanic Garden of Snowdon, and distant about three miles from the former station.

This has probably been confounded by many botanists

with *W. hyperborea;* their size and general aspect being nearly the same: but here the pinnæ or leaflets are longer and narrower, not cordate, more deeply pinnatifid with more numerous and oblong segments; the stipes is more chaffy, and the underside of the leaflets, especially at the midrib and the rachis, are thickly clothed with reddish chaffy scales; whilst the same parts of *W. hyperborea* are sparingly clothed with pale hairs, intermixed, indeed, on the rachis with a very few broader hairs, or scales. Mr. Sowerby observes that the capillary segments of the involucre are not so numerous in *W. ilvensis*, and the capsules more spherical.

The specimens, from which our figures are taken, were communicated from Mr. Wilson's locality by Mr. Winch. The only other station yet given for it is Falcon Clints near Caldron-Snout, Teesdale, where it is found by Mr. James Backhouse and Mr. J. Hailstone. The two places mentioned in The English Flora, on the authority of these two gentlemen, are one and the same.

In Switzerland this plant grows larger than with us; and from North America we have specimens thrice the size of our plants.

Woodsia hyperborea may be thus characterized:

WOODSIA hyperborea.

Rounded-leaved Woodsia.

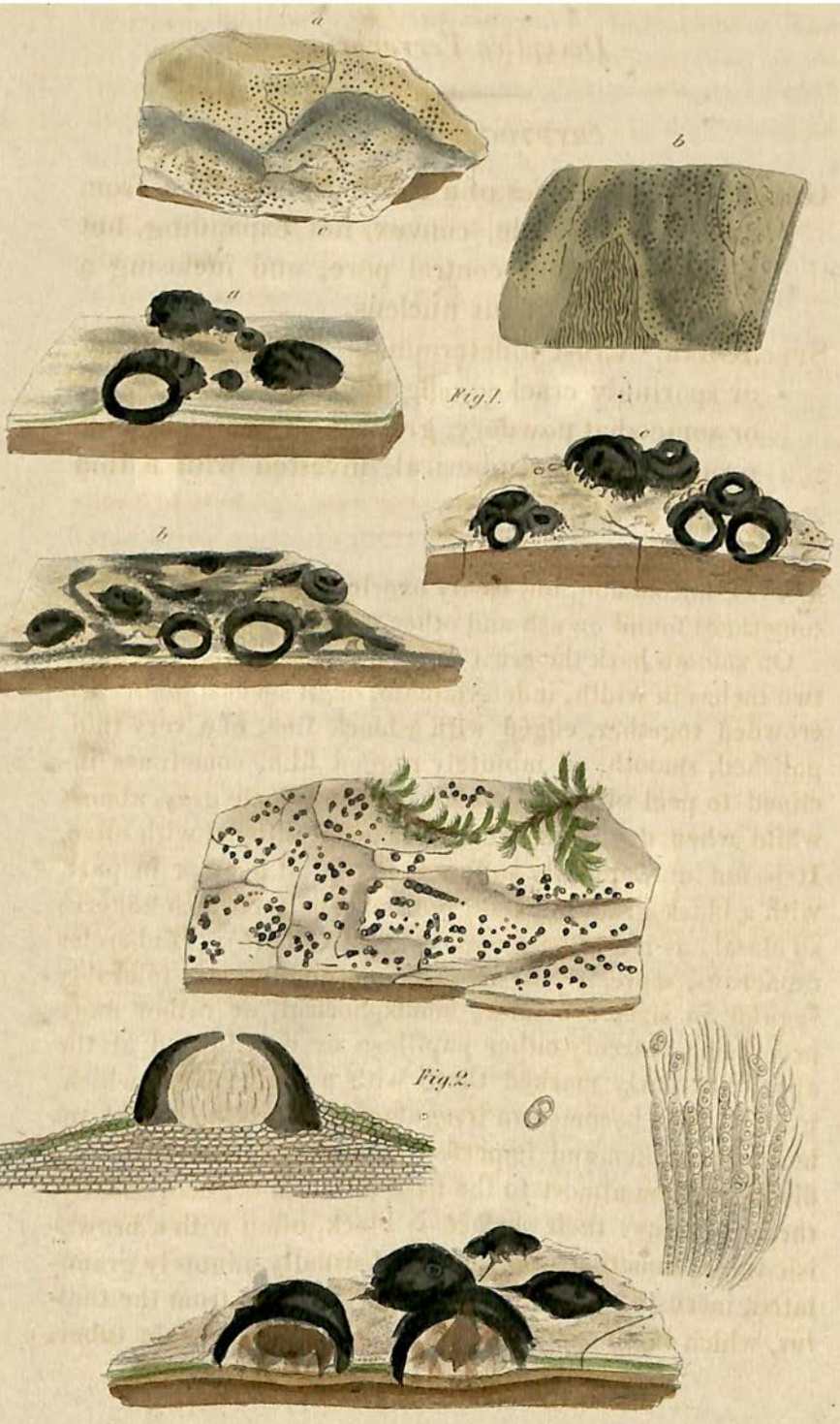
Spec. Char. Leaflets cordate, pinnatifid, with few and rounded segments, beneath and the rachis hairy, stipes chaffy.

Syn. Woodsia hyperborea. *Br. in Tr. of Linn. Soc. v.* 11. 173. *t.* 11. *Engl. Fl. v.* 4. 323.

Polypodium hyperboreum. *Swartz. Syn. Fil.* 39. *Engl. Bot. t.* 2023. (excluding the synonym of Ray.)

W. J. H.

The genus *Woodsia* was first instituted by Mr. Brown, with beautiful illustrations from the pencil of Mr. Bauer, in the eleventh volume of *Transactions of the Linnean Society.*



Verrucaria biformis. Fig. 1.

_____ gemmata. Fig. 2.

December 1st 1829.

2617. (Fig. 1.)

VERRUCARIA biformis.

Deceptive Verrucaria.

CRYPTOGAMIA Lichenes.

GEN. CHAR. *Tubercles* of a different substance from the thallus, simple, convex, not expanding, but furnished with a central pore, and inclosing a somewhat gelatinous nucleus.

SPEC. CHAR. Crust indeterminate, filmy, continuous, or sparingly cracked, slightly rugose, or smooth, or somewhat powdery, greyish. Tubercles small, prominent, hemispherical, invested with a thin film.

NOT uncommon, but easily overlooked, on young oaks; sometimes found on ash and other trees.

On smooth bark the crust forms irregular patches, seldom two inches in width, indeterminate, or, if several plants are crowded together, edged with a black line, of a very thin, polished, smooth, or minutely rugged film, sometimes inclined to peel of in little scales; its hue pale grey, almost white when dry, or more or less deeply tinged with olive. It is not unfrequently suffused, either all over or in part, with a black granulated or powdery matter which adheres so closely as not to be removed by rubbing (*b*). Tubercles numerous, scarcely half so large as poppy-seed, tolerably regular in size, orbicular, hemispherical, or rather more prominent, scarcely either papillose or umbilicated at the apex, but early marked there with a minute dot, which, usually, soon becomes an irregular chink, giving to old tubercles a broken and imperfect appearance, and sometimes dividing them almost to the base into two or, occasionally, three portions: their surface is black, often with a brownish tinge, sometimes polished, but usually minutely granulated, incrusted in the lower part with a film from the thallus, which in an early stage often invests the whole tuber-

cle (*a*). When the crust spreads from the smooth bark into the cracks of young oaks, and when it grows on more rugged bark, it is more widely effused and whiter, seldom polished, and not rarely of a powdery appearance. The tubercles in this state of the plant, are more numerous, more irregular in size, more prominent, often crowded and confluent, not rarely of a pruinose appearance; and their apex is very often umbilicate (*c*).

This is an obscure and puzzling Lichen. In the state first described it approaches near to *V. olivacea*, although the whiter crust, and the broken appearance of the older tubercles, tolerably well distinguish it. The latter character, and the thicker shell and greater protuberance of the tubercles, distinguish it from *V. cinerea* of Persoon, (*Lichen stigmatellus*, *t.* 1891 of the present work,) without adverting to the differences of the crust. The blackened specimens bear some resemblance to *V. rhyponta*, but the much greater size and different structure of the tubercles will prevent their being mistaken for that species; nor is the crust, in reality, less truly different. The second state is so unlike the first, that the two might well be thought distinct, did not specimens like that drawn at *a*, *c*, occur, in which the crust of the same individual, spreading on young oaks from the smooth epidermis to the cracks of the bark, bears in the one part the former, in the other the latter appearance. This state is possibly *V. farrea* of Acharius; but, should it prove so, we should hesitate to adopt the name, as neither applicable nor intended to apply to the other form of the species. It very closely resembles *V. gemmata*, and were it not for the impossibility of separating it from the former, doubt might arise whether it ought not to be united to that species. The tubercles, however, do not attain half the size usual in *V. gemmata*, although they seem liable to all the same variations in figure, except, perhaps, that they never become mammillated. Their shell, also, passes under the base of the nucleus, which is not the case in *V. gemmata*; at least not usually, for we are by no means certain of the constancy of this apparently essential character.—W. B.

2617. (Fig. 2.)

VERRUCARIA gemmata.

Large-fruited Bark Verrucaria.

CRYPTOGAMIA Lichenes.

GEN. CHAR. *Tubercles* of a different substance from the thallus, simple, convex, not expanding, but furnished with a central pore, and inclosing a somewhat gelatinous nucleus.

SPEC. CHAR. Crust indeterminate, almost filmy, continuous or somewhat cracked, nearly smooth, whitish. Tubercles large, prominent, hemispherical or deformed, naked or invested with a very thin film.

SYN. Verrucaria gemmata. *Ach. Meth.* 120. *t.* 3. *f.* 1. *Lich. Univ.* 278. *t.* 4. *f.* 2. *Syn.* 90. *DeCand. Fl. Fr. v.* 2. 315. *Purton, v.* 3. 162.

V. melaleuca. *Ach. Meth.* 117.

V. alba. *Schrad. Spicil.* 109. *t.* 2. *f.* 3?

Lichen melaleucus. *Ach. Prod.* 15.

L. gemmatus. *Ach. Prod.* 17.

WE are not aware that this Lichen is noticed in any work on British plants besides Purton's *Midland Flora;* yet few occur more frequently on the trunks of trees, especially on the ash.

The crust is scarcely more than a film, although sometimes sufficiently thick to show an internal green substance when cut. It spreads widely and indeterminately, except that when several plants crowd each other their limits are usually marked by a black line. Its surface is continuous or variously cracked, smooth, in general, but scarcely polished, sometimes a little rugged, and sometimes looking almost powdery, of a white more or less pure, or, occasionally, of a dirty grey or lead colour. Tubercles scattered,

mostly rather distant, but now and then clustered and confluent, often as large, when fully grown, as mustard seed, but very variable in size, as also in their figure, which is sometimes regularly convex and hemispherical, but most frequently more protuberant, and often irregular: occasionally, too, their apex is flattened, occasionally singularly mammillated. The surface of the shell is either black and shining, or of a somewhat pruinose appearance, as if covered by a slight pellicle from the crust, which now and then rises, also, a little around the base. The orifice is scarcely perceptible but in old tubercles, where it is either a minute pore, or larger and often irregular. Nucleus whitish, containing or composed of linear thecæ, within which Mr. Sowerby finds the "sporæ" united in pairs: in drying it shrinks so as merely to line the interior of the shell.

The large size of the tubercles distinguishes this from all the other British *Verrucariæ* that grow on bark, except some states of *V. nitida*, a species with which it has little else in common. One of the rock species, *V. epipolæa* of Acharius, has equally large tubercles, and is so similar that it might be supposed a mere "varietas loci;" yet its more tartareous crust, with a powdery surface, and its rugose, brownish, less variable tubercles afford perhaps constantly distinctive marks. Under *V. biformis* we have remarked how nearly that plant is allied to the present, and have endeavoured to point out the differences. The South American *V. hymnothora* of Acharius, *Syn. Lich. p.* 92, is so like *V. gemmata* that we know not how to distinguish it; we have, however, seen too little of that Lichen to affirm confidently that it is the same.

We believe this to be the *V. alba* of Schrader; but, his figure being such as to admit of some degree of doubt, we prefer the later, but certain and generally adopted, name given by Acharius.—W. B.

ERICA ciliaris.

Fringed-leaved Heath.

OCTANDRIA Monogynia.

GEN. CHAR. *Calyx* of four leaves. *Corolla* of one petal. *Capsule* superior; partitions from the centre of each valve.

SPEC. CHAR. *Anthers* awnless, included. *Corollas* ovate gibbous on the upper side. *Leaves* 3 or 4 in a whorl, ovate, glaucous beneath, fringed as well as the calyx with glandular hairs; racemes secund.

SYN. Erica ciliaris. *Linn. Sp. Pl.* 503. *Curt. in Bot. Mag. t.* 484. *Willd. Sp. Pl. v.* 2. 393. *DeCand. Fl. Fr. ed.* 3. *v.* 3. 678. *Lindl. Syn. Brit.* 174.

Erica hirsuta anglica. *Bauh. Pin.* 602.

Erica XII. *Clus. Hist. v.* 1. 46.

ALTHOUGH Bauhin in his *Pinax* calls this *Erica hirsuta anglica*, and Hudson in the first edition of his *Flora* enumerates the *E. ciliaris* as a British plant, it is on all hands acknowledged that they were both in error; that the former wrote the word "*anglica*" by mistake, and that the latter had in view the hairy-leaved variety of *Calluna vulgaris*. The credit, therefore, of discovering this very beautiful species of Heath, and first making it known to the Botanical world as a native of England, is due to my excellent friend the Rev. J. S. Tozer of Truro, Cornwall, a most zealous, accurate, and fortunate botanist, who found it growing in tolerable abundance in boggy (never in dry) situations around the place of his residence *. So striking a plant could not have escaped the observation

* In several spots in the neighbourhood of Truro, but most plentifully and most luxuriantly at *East Croft*.

of other gentlemen residing in Cornwall; and Mr. Dillwyn has been so obliging as to communicate two other stations for the plant, which have been long known to Sir Charles Lemon; namely, "on a heath at Carclew, near Penryn, abundantly, and also on a heath in the parish of St. Agnes, in the north-west of the county." Upon the Continent, it inhabits the southern parts of France, but is most frequent in Spain and Portugal.

It grows a foot or more high, and has the leaves quaternate as well as ternate, ovate, plane above, their margins reflexed, beautifully fringed with white, rather long, hairs, each tipped with a gland; the under-side is glaucous, and marked with a strong green, not glaucous, midrib. The flowers are large, showy, of a most beautiful purple, unquestionably the most beautiful of our native species, and one that will bear comparison with many of our choicest cultivated species from the Cape. In habit, in the large secund flowers, and in the comparative breadth and disposition of the leaves, this Heath bears considerable affinity with the *Menziesia polifolia:* and Mr. Tozer has remarked to me that "the capsule has 8 furrows, one at each filament, and 4 cells, the partition *double*, being formed of the inflexed margin of the valves, and that the seeds are affixed to a large 4-lobed central column, as is described in *English Flora* as characteristic of *Menziesia*."—This is perfectly correct. There are in reality 8 valves, or 4 pairs, each pair having their inner margins inflexed and reaching to the receptacle, so as to form 4 double (not simple) partitions. The dehiscence, however, does not here take place at these inflexed margins of the valves, or very imperfectly if it does, though they are there easily separated, but opposite to the middle of each cell and reaching about half way down from above. Thus, this plant agrees with Smith's character of *Erica* in having the partitions from the centre of each of the 4 (double) valves; but differs in the partition being double. A similar structure is probably frequent in *Erica*, only that, in general, the introflexed margins are more closely united. This seems to correspond very nearly with what Mr. Brown says of *Andromeda calyculata*, "Cujus capsula primum ad medium dehiscit in valvis 5 medio septiferis, mox autem septorum lamellis longitudinaliter solutis in 5 cocculos bifidos sæpe disrumpitur." *Prodr. p.* 558. W. J. H.

SALIX Borreriana.

Borrerian Willow.

DIŒCIA Diandria.

GEN. CHAR. Male, *Cal.* a scale of an imbricated catkin, single-flowered. *Cor.* none. *Nectary* a gland at the base of the stamina. *Stam.* 1—5. Female, *Cal.* and *Nect.* as in the male. *Cor.* none. *Stigmas* 2. *Caps.* of 1 cell and 2 valves. *Seeds* tufted.

SPEC. CHAR. Leaves lanceolate, with shallow nearly even serratures, very smooth; glaucous beneath. Stipules lanceolate, small. Branches erect. Scales of the catkins acute, shaggy.

SYN. Salix Borreriana. *Sm. Engl. Fl. v.* 4. 174.

A MUCH branched shrub, decumbent at the base only, about ten feet high; large branches ash-coloured; twigs numerous, short, spreading or ascending, not flexuose, tinged with red at first, with obscure lines of down, soon becoming smooth and shining, and assuming a deep mahogany hue. Buds large, compressed, of as dark a hue as the twigs, or darker, shining, though copiously sprinkled with appressed hairs. Leaves spirally scattered at short distances, usually four in a set, about two inches long and half an inch wide, carinate, twisted, lanceolate, tapering gradually to each end, somewhat unequally divided by the midrib, which is minutely downy on the upper surface; texture firm; nerves and veins sunken above, prominent beneath; upper surface dark green and shining, under-side glaucous; both sides perfectly smooth, or with a few scattered silky hairs on each, on luxuriant young shoots, in which case the shoot itself is downy all over; edges somewhat cartilaginous, seldom at all recurved, closely crenate or notched with shallow, flat, or slightly waved, gland-pointed teeth.

Leaf-stalks about one fourth as long as the leaves, slightly dilated at the base, channelled and downy on the upper side. Stipules deciduous, small, obliquely lanceolate, with glands on the edge and on the inner surface. Catkins abundant and showy, about an inch long, on short silky stalks beset with two or three small fringed bracteal leaves; flowers rather loosely set, with lanceolate, blackish, very shaggy scales. Stamina two, considerably longer than the scales. Female plant unknown to us.

This Willow is a native of the Highland valleys of Scotland. A cutting brought from Killin, in Breadalbane, in 1810, produced the plant from which the specimens here figured were taken. It flowers about the beginning of April, earlier than the generality of mountain willows. No foreign author appears to have noticed the species, for *Fl. Dan. t.* 1052, can scarcely have been taken from it. It is nearly allied to *S. phylicifolia, t.* 1958, but seems distinct, differing much in its mode of growth and habit, and its narrower and truly lanceolate leaves. W. B.

SALIX Hoffmanniana.

Hoffmannian Willow.

DIŒCIA Diandria.

GEN. CHAR. Male, *Cal.* a scale of an imbricated catkin, single-flowered. *Cor.* none. *Nectary* a lgand at the base of the stamina. *Stam.* 1—5. Female, *Cal.* and *Nect.* as in the male. *Cor.* none. *Stigmas* 2. *Caps.* of 1 cell and 2 valves. *Seeds* tufted.

SPEC. CHAR. Leaves ovate-oblong, serrated, smooth; slightly rounded at the base. Stamens three. Germen stalked, ovate, compressed, smooth. Stigmas nearly sessile. *Sm.*

SYN. Salix Hoffmanniana. *Sm. Engl. Fl. v.* 4. 168.
S. triandra. *Hoffm. Sal. v.* 1. 45. *t.* 9. 10. *t.* 23. *f.* 2. (excl. the varieties ?)

NOT uncommon about streams &c. in Sussex; but, as the male plant only has been observed, it cannot be regarded as originally a native there. Of the female we have seen only the barren specimen, supposed to be such, mentioned in *English Flora* as sent by Mr. Holme from Cambridgeshire.

A much branched shrub, or small crooked tree, scarcely exceeding twelve feet in height. Bark of the stem and large branches deciduous, as in the other triandrous Willows. The more humble growth, the short, flat, lanceolate leaves, more rounded at the base, with larger, rounded, ear-shaped stipules, distinguish the plant from *S. triandra*, *t.* 1435, with which it is said to agree in the female flowers, as it does in wanting the deep furrows of the young twigs remarkable in *S. amygdalina*, *t.* 1936. The flowers appear, together with the leaves, towards the latter end of May.

Hoffmann's var. 1, a leaf of which is represented in his *t.* 23. *f.* 2. *b.*, is perhaps the doubtful plant mentioned in *English Flora, p.* 167, as known among basket-makers by the name of *French Willow*. To this the *S. triandra* of *Flora Londinensis* also probably belongs, although the stipules are drawn less arched and rounded than they usually occur. In the plant in question they most resemble those of *S. Hoffmanniana*, but are not so large, and the leaves are similar to those of *S. triandra* in shape, but smaller. The twigs are in some degree angular, but not so remarkably as in *S. amygdalina*.

The stipules of *S. triandra* are not in general so large, nor so much rounded, as they are represented in *t.* 1435.

S. acuminata of Hoffmann, to which the trivial name *Hoffmannia* was first given by Bluff and Fingerhuth (*Compend. Fl. Germ. v.* 2. *p.* 568), was intended, we doubt not, to comprise *S. cinerea*, *S. oleifolia*, and *S. aquatica* of Smith.

W. B.

January 1st 1830.

2621.

JUNCUS balticus.

Northern Rush.

HEXANDRIA Monogynia.

GEN. CHAR. *Cal.* of 6 leaves. *Cor.* 0. *Caps.* of 3 cells, and 3 valves; *seeds* numerous, horizontal.

SPEC. CHAR. Stem leafless, not striated. Panicle lateral, somewhat compound, erect, lax. Leaflets of the calyx acute, nearly equal, as long as the elliptical and scarcely trigonal capsule. Root much creeping.

SYN. Juncus balticus. *Willd. in Magaz. Berol.* 1809. 298. *Meyer, Syn. Junc.* 15. *Laharpe, Junc. in Mém. de la Soc. d'Hist. Nat. de Paris, t.* 3. 114.

J. arcticus. *Hook. Fl. Scot. P.* 1. 104. *Hook. in Fl. Lond. t.* 151. *Sm. Engl. Fl. v.* 2. 163.

J. glaucus. *Wahl. Fl. Lapp. n.* 149.

I AM happy to have an opportunity of correcting an important error into which I have fallen in considering the present very interesting plant, both in *Flora Scotica* and in *Flora Londinensis*, as the *Juncus arcticus*. I had compared it with a Swedish specimen from the late Dr. C. Smith, which came to me marked *J. arcticus*: but that plant, as well as ours, proves to be the *Juncus balticus* of Willdenow, which may be distinguished from the true *arcticus* by its taller size and more rigid stems, by its more or less compound and lax panicles of flowers, by their sharper calycine leaflets, and by its more rounded capsules.

Besides the station given in *Flora Scotica*, namely, the Sands of Barrie, near Dundee, where this plant was first found by Mr. Drummond, we have now the satisfaction of mentioning that it has been detected by the Rev. George

Gordon of Elgin, in the vicinity of that town, growing upon the sea-shore, at Stotfield, and inland upon the banks of the Losie near Boghead; and also, by Dr. Alexander Murray of Aberdeen, at Sandwood and Aldshure, both in Sutherlandshire.

It appears to be quite a Northern plant, and to delight in sandy places, where its stout roots creep to a great extent, throwing up numerous stems from 6 inches, as in some of Mr. Gordon's specimens, to a foot and half and two feet in height. These stems are quite even on the surface, (not striated as in *J. glaucus*,) sheathed with large, oblong, bright but pale brown, obtuse scales, and gradually tapering upwards. The compound panicle springs from a cleft from 3 to 5 inches below the extremity of the stem, and has a few lanceolate membranous scales, of which one is larger than the rest. Flowers and fruit large in proportion to the size of the plant: the latter shining, mucronate.

J. balticus inhabits Newfoundland, as well as Scotland and the shores of the Baltic. W. J. H.

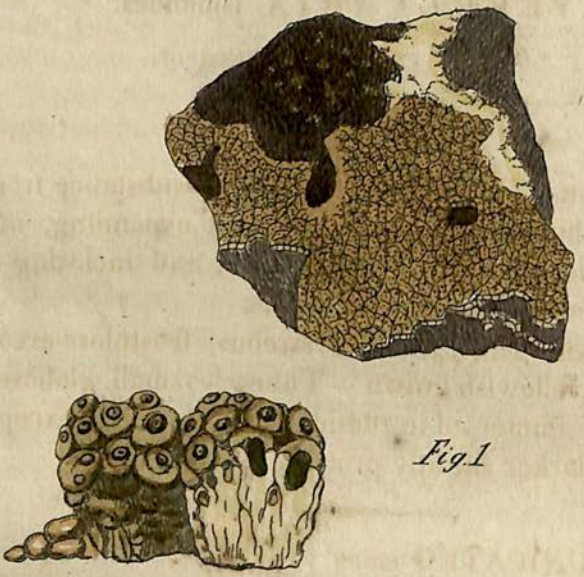


Fig.1

Fig.2

2622. (Fig. 1.)

VERRUCARIA isidioides.

Warty-crusted Verrucaria.

CRYPTOGAMIA Lichenes.

GEN. CHAR. *Tubercles* of a different substance from the thallus, simple, convex, not expanding, but furnished with a central pore, and inclosing a somewhat gelatinous nucleus.

SPEC. CHAR. Crust thick, tartareous, frustulose-areolate, yellowish brown. Tubercles small, globose, pale, immersed in tumid roundish warts, except the darker slightly prominent apex.

COMMUNICATED many years ago to Mr. Turner by the late Miss Hutchins, who gathered it in Glengariff, near Bantry. No other botanist appears to have met with the species.

The plant forms indeterminate patches of considerable extent, consisting at first of small, thin, plicate granulations scattered on the rock. These are at length crowded into a very uneven crust, which attains the thickness of a line in the central parts, and is divided by narrow cracks into irregular areolæ, each composed of a congeries of convex warts, which vary in protuberance, and are of a circular outline when perfect, but often deformed by mutual pressure. The surface is unpolished, greyish brown, nearly the same wet as dry, often tinged with yellow in the younger parts of the patch. The substance is extremely friable in the thick state of the crust, of a somewhat fibrous fracture, and of a looser texture at the base; whence the areolæ are liable to become detached and to fall off, giving the patch a broken ragged appearance. The internal hue is grey or almost white, frequently yellowish immediately round the tubercles. These are very numerous, each occupying one of the convex warts of the crust, which are usually concave at the summit, the circumference forming a tumid ring at a little distance from

the tubercle. They are globular, scarcely half the size of poppy-seed. Their shell is apparently single, thin, and pale brown, except at the apex, which alone emerges, where it is somewhat thickened, dark brown, or even black, and occasionally polished, but more generally of a rather pruinose appearance, as if obscured by a film from the surface of the crust. The exposed part, a mere dot to the naked eye, is convex, yet scarcely more prominent than the raised circumference of the wart, at length pierced with a rather large, and in general regular, round orifice. When moderately magnified, it much resembles in appearance the globule of an *Isidium*. The nucleus is brownish, wax-like, solid, or with a very minute central cavity when dry; more gelatinous when wet, and paler, with darker striæ spreading from the centre perceptible under a powerful magnifier.

Acharius would perhaps have placed this singular Lichen in his genus *Porina*, to the species of which it has some resemblance in the warts that inclose the tubercles, as well as in the solid wax-like substance of the nucleus of the tubercles themselves. Yet the manner in which their apex usually emerges appears to point out a closer affinity to the other *Verrucariæ*. It is, in fact, one of the many links which connect the *Pyrenulæ* of Acharius with his *Endocarpa*. It has the pale, thin, and apparently single perithecium of the latter, and resembles the former in the structure of the crust. *V. fuscella*, *t.* 1500, and the very nearly allied *V. tephroides*, *t.* 2013, are similarly intermediate.

Lichen obscurus, *Engl. Bot.* 1752, (scarcely the *Opegrapha obscura* of Persoon, or the *Arthonia obscura* of Acharius,) however different from the present species in other respects, agrees with it in the structure of its tubercles, and must be referred to the same genus. It is only when the tubercles become confluent that it assumes the appearance of an *Arthonia*.

W. B.

2622. (Fig. 2.)

VERRUCARIA Hookeri.

Hookerian Verrucaria.

CRYPTOGAMIA Lichenes.

GEN. CHAR. *Tubercles* of a different substance from the thallus, simple, convex, not expanding, but furnished with a central pore, and inclosing a somewhat gelatinous nucleus.

SPEC. CHAR. Crust thick, of pure white tumid tartareous scales covering a black spongy substance. Tubercles ampulliform, black, immersed, except the conical or truncate apex.

HITHERTO observed, as far as we are informed, only on dead mosses on the micaceous soil of Ben Lawers, in the hollow near the summit in which *Saxifraga cernua* grows. It was discovered, in 1808, by the writer of the present page in company with the distinguished botanist whose name he wishes it to bear.

Very unlike to every other *Verrucaria* with which we are acquainted both in thallus and in fructification. The thin, turgid, somewhat lobed, tartareous scales are similar in figure to those of *L. frustulosus*, *t. 2273*, but of a much smaller size. Their surface appears smooth to the naked eye, minutely rugged under a glass. Their internal substance is green. They grow either scattered, or crowded more or less closely into small patches, which bear a general resemblance to those of *L. aromaticus*, *L. desertorum*, and some others of the Acharian *Lecideæ*. The black substratum, in which the tubercles are immersed, is probably analogous to the radicles of some of those *Lecideæ*, or to the substance upon which the scales of several of the smaller species of *Endocarpon* are seated. It is of uncertain thickness, imbibes water freely, and is not always easily distinguishable from the decayed moss upon which it grows. A question may

possibly arise, whether the tartareous scales really belong to it; but the best examination we can give leads us to believe they do. The tubercles have a black shell, apparently single, and a brownish grey nucleus. Their body is oval, and a cylindrical neck rises either through or between the scales of the crust. In the latter situation they sometimes form crowded lines, the exposed portion is rarely polished, sometimes conical with a central impression, sometimes truncate with an open pore, which occasionally becomes irregular.

We are not acquainted with *V. spongiosa* of Acharius; but, from the description and figure, it must differ widely from the present species. W. B.

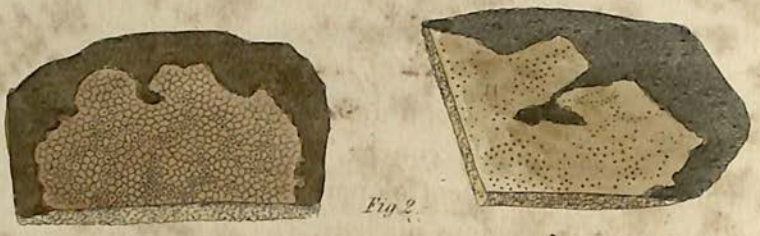
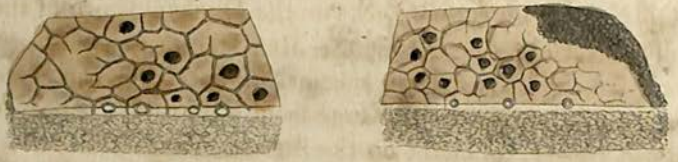


Fig 2.



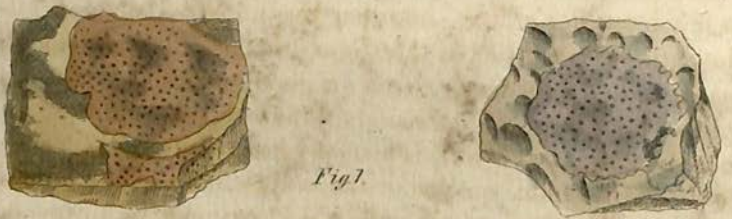


Fig 1.

Verrucaria concinna. Fig. 1.

_____ cavata. Fig. 2.

February 1st 1830

2623. (Fig. 1.)

VERRUCARIA concinna.

Neat Verrucaria.

CRYPTOGAMIA Lichenes.

GEN. CHAR. *Tubercles* of a different substance from the thallus, simple, convex, not expanding, but furnished with a central pore, and inclosing a somewhat gelatinous nucleus.

SPEC. CHAR. Crust determinate, very thin, tartareous, continuous, even, grey, somewhat pruinose. Tubercles of a middle size, prominent, hemispherical, umbilicate, black.

FOUND on limestone rocks on the Durham shore of the Tees, near Eglistone. The late Mr. Robson, who appears to have first discovered the species, sent it from the same county, and the late Sir T. Gage from Killarney. It occurs also, but rarely, on chalk on the Sussex Downs.

The extremely thin crust forms roundish patches, an inch or two in diameter, mostly circumscribed by a narrow black line. Its surface is continuous, or, very rarely, marked with a few irregular cracks, no otherwise uneven than as it follows the inequalities of the stone, unpolished, and looking as if slightly powdery. Under a good magnifier it appears pitted all over with extremely minute blackish dots. Its usual colour, when wet, is a smoky brownish grey, varying in tint; in some specimens the same when dry, in others of a dark lead or mouse colour. Occasionally, however, the external hue is the same as that of the internal substance, almost white with a very faint tinge of green when wet. Tubercles numerous, regularly scattered in general, but some of them sometimes confluent, about as large as poppy-seed, hemispherical or rather more prominent, of a full black, usually more or less polished: their base sunk in a very slight degree in the stone beneath the crust; the crust sometimes rising a little around, and in some instances

forming a sort of spurious margin: their apex sometimes regularly dimpled, with a central pore; but mostly irregular, both dimple and pore, and often the whole shell, becoming rugged and uneven, and the tubercle, in some cases, assuming the appearance of an imperfect patellula: nucleus obscure, sometimes white, sometimes almost black; its base not inclosed by the shell.

The Lichen before us differs from *V. rupestris* of Schrader by its limited and even crust, and its more prominent and larger tubercles. It is also of a much neater and more regular appearance. In *V. immersa* of Hoffmann (*Pl. Lichen. t.* 12. *f.* 2–4), which should probably be separated from *V. rupestris*, the tubercles are still smaller. In both these Lichens the tubercles possess, more remarkably than in *V. conginna*, the property of excavating and forming hollows in the stone; and, in both, the nucleus is either subtended by the shell, or is inclosed in a black inner perithecium.

In the specimen figured in *Engl. Bot. t.* 1711, as *Lichen Schraderi*, *V. rupestris* and *V. immersa* appear to have grown intermixed, as they frequently do on chalk. *V. Schraderi* of Acharius probably includes *V. rupestris* and *V. immersa*, and, judging from the specimen communicated by that author to the Linnean Society, some other species also. In his *Synopsis Lichenum* Hoffmann's figures are referred to, with doubt, under *Lecidea immersa*. W. B.

2623. (Fig. 2.)

VERRUCARIA lævata.

Greyish Water Verrucaria.

CRYPTOGAMIA Lichenes.

GEN. CHAR. *Tubercles* of a different substance from the thallus, simple, convex, not expanding but furnished with a central pore, and inclosing a somewhat gelatinous nucleus.

SPEC. CHAR. Crust thin, tartareous, cracked, smooth, dirty white or brownish grey. Tubercles small, partially emerging, somewhat conical, black.

SYN. Verrucaria lævata. *Ach. Lich. Univ.* 284. *Syn.* 94.

ROCKY beds of streams in mountainous districts produce this Lichen. Our specimens were sent from the North of England by the Rev. J. Harriman. Mr. Robertson has favoured us with the same from Teesdale, and the late Sir T. Gage found it at Killarney.

The crust, often scarcely more than a film, is sometimes as thick as the shell of a hen's egg, and then it is white within, except a thin layer of green near the surface: externally it is more or less brown in different specimens, not greenish, as Acharius describes it, unless the surface has been abraded, nor does its hue change upon the application of moisture; yet an external tinge of green may possibly exist in the living plant *. The minute cracks look as if caused by the shrinking of the originally continuous crust. They vary much in abundance: in the thicker specimens they usually divide the whole surface into imperfect, small, angular areolæ. The tubercles are mere specks to the naked eye, numerous, but rarely crowded; their base sunk in the crust, which often rises about them, and obscures, as

* In a specimen sent by Acharius to the Linnean Society, the crust has somewhat of a carneous hue, and the tubercles are rather larger than in ours; yet we believe that specimen to be of the same species.

with a film, the greater part of their surface. The exposed portion is black and polished, sometimes mammillated, sometimes dimpled, and often marked with a distinctly perceptible pore.

Specimens, apparently of this species, found by Mr. Robertson, by the Tyne, near Newcastle, on sand-stones exposed to the tide, are variously tumid, and of a darker and more olive hue than usual. These have much of the general appearance of some states of the *Endocarpon viridulum* of Schrader, the species to which the *Lichen tessellatus*, badly described and figured in *Engl. Bot.* 533, belongs. The *L. viridulus*, *t.* 2455, we now believe unpublished elsewhere, and we propose to call it *V. elœina.* The two species may be thus distinguished :

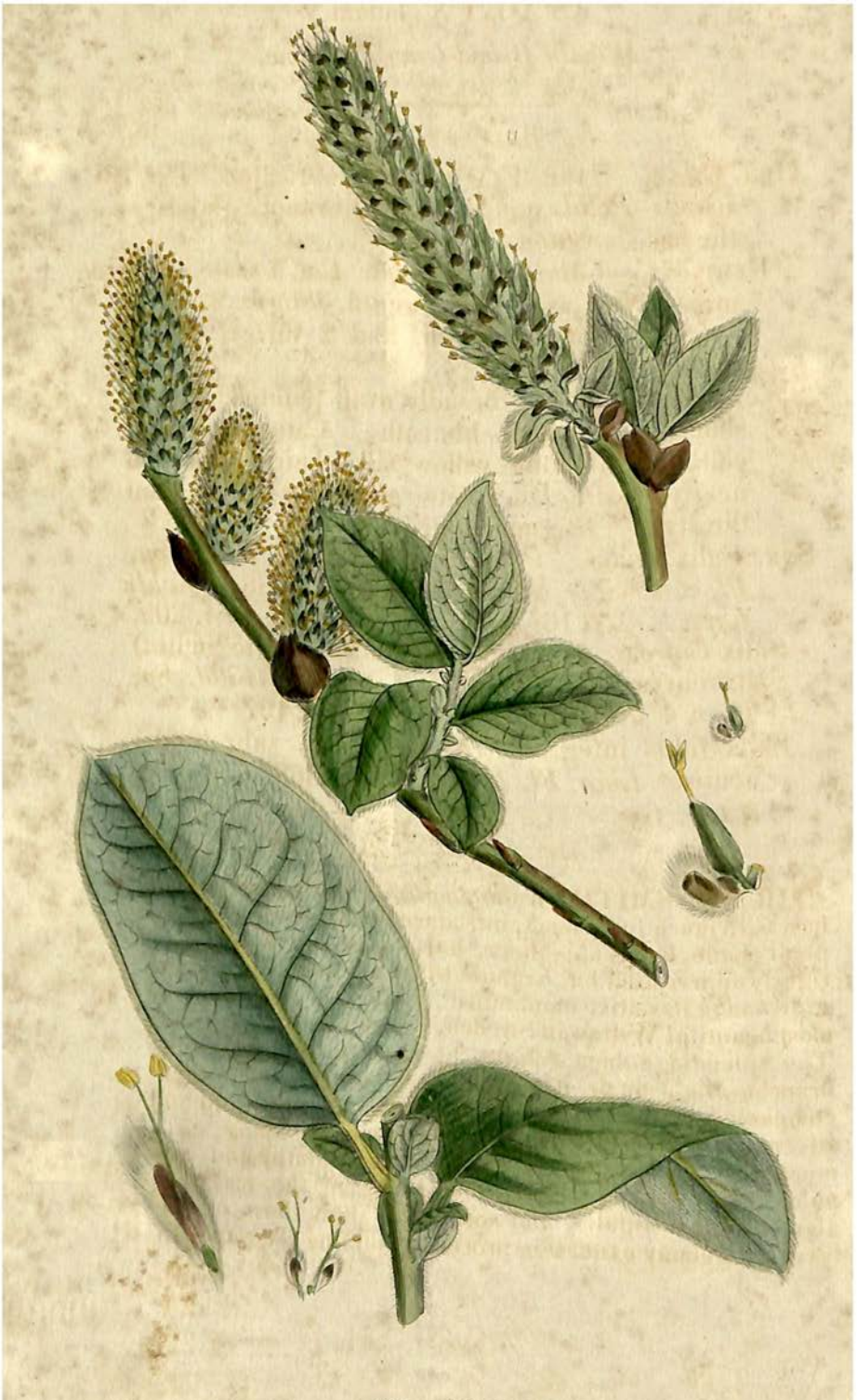
V. elœina. Crust thin, tartareous, cracked, smooth, slightly tumid above the tubercles, greenish olive. Tubercles small, immersed, black, between hemispherical and conical ; at length emerging.

Syn. Lichen viridulus. *Engl. Bot. v.* 35. 2455, *excluding the synonyms.*

V. viridula. Crust of polygonal granulato-crenate scales, thickish, tartareous, rugose, greenish olive-brown. Tubercles largish, black, partially immersed, conical.

To this common and very variable species belong the synonyms quoted in *Engl. Bot.* 2455. Acharius, in his *Lichenographia Universalis*, *p.* 290, gave the plant of Schrader as a variety of *V. fuscella*, (the *Lichen fuscellus* of Turner and of *Engl. Bot.* 1500,) but corrected this error in the *addenda* to that work, *p.* 675, where *V. viridula* stands as a species, distinguished both from *V. fuscella* and from *V. tessellata.* In his *Synopsis Lichenum*, *p.* 126, he has properly united it with the latter as a species of his genus *Pyrenula*, but has retained the trivial name *tessellata*, given in *English Botany* to the young state of the plant, in preference to that previously bestowed on the species by Schrader.

The crust of this species is originally frustulose ; that of *V. elœina* originally continuous ; so that the two belong to different sections of the genus. W. B.



February 1st 1830.

SALIX lanata.

Woolly Broad-leaved Willow.

DIŒCIA Diandria.

GEN. CHAR. BARR. FL.—*Catkin* imbricated. *Cal.* a scale. *Petals* none. *Nect.* 1 or more glands, at the base. *Stam.* 1—5.

FERT. FL.—*Catkin* imbricated. *Cal.* a scale. *Pet.* none. *Nect.* as in the barren fl. *Stigm.* 2. *Capsule* superior, of 1 cell, and 2 valves. *Seeds* tufted.

SPEC. CHAR. Leaves broadly oval, pointed, entire, shaggy, glaucous beneath. Catkins sessile, clothed with long yellow silky hairs. Germen nearly sessile, lanceolate, glabrous, longer than the style. Stigmas undivided.

SYN. Salix lanata. *Linn. Sp. Pl.* 1446. *Willd. Sp. Pl. v.* 4. 688. *Sm. in Rees' Cycl. n.* 88. *Wahl. Lapp.* 259. *t.* 16. *f.* 1. *Sm. Engl. Fl. v.* 4. 205.

Salix caprea. *Fl. Dan. t.* 245. (according to Smith.)

Salix chrysanthos. *Fl. Dan. t.* 1057. *Willd. Sp. Pl. v.* 4. 704. *Sm. in Rees' Cycl. n.* 127.

Salix foliis integris utrimque lanatis subrotundis acutis. *Linn. Fl. Lapp.* 293. *n.* 368. *t.* 7. *f.* 7. & *t.* 8. *f. x.*

SIR J. E. SMITH, in the *English Flora* above quoted, has, with much judgement, introduced the remark upon this plant made by Wahlenberg, but which can scarcely be rightly appreciated but by those who have seen it in a living state and in its native mountains. "This is," he says, "the most beautiful Willow in Sweden, if not in the whole world. The splendid golden *catkins*, at the ends of the young branches, light up as it were the whole bush, and are accompanied by the young foliage, sparkling with gold and silver. It yields more honey than any other *Salix*, insomuch that the catkins are sweet to the mouth, and are much frequented by alpine bees. From the marginal glands of the stipules, and sometimes from those of the leaves, a gummy exudation proceeds, staining the paper in

which the plant is dried, like *S. pentandra*."—His discovery of such a plant in Britain, could not fail to be a most interesting circumstance to the Botanists of our country, and we were highly gratified on receiving native specimens from Mr. Drummond a few years ago, and on afterwards being shown the plant by him, growing among rocks on the Clova mountains.

The plant forms a low shrub, with straggling tortuous branches, clothed with a brown glabrous and shining bark. The catkins first appear in April from the extremities of the branches, or near the extremities, bursting from two shining chesnut-coloured scales, and are clothed with the most beautiful long, yellow, soft, and silky hairs that can be imagined, and then are accompanied by a few young leaves as soft, as silky, and as yellow as themselves. Male catkins oblong, an inch and a half or two inches long. Scales oblong, purplish, enveloped in the silky hairs. Stamens 3, sometimes 2, with the filaments not unfrequently more or less combined. Nectary oblong, thick, with a honied point. Female catkins 2–4 inches long, erect, cylindrical. Scales and nectary nearly as in the male. Pistil in our specimens upon a very short pedicel; germen green, quite glabrous, lanceolate, terminated by a slender yellow style somewhat more than half its length, and two broadly lanceolate, yellow, thickened stigmas. As the pistils advance to maturity, the catkins lose much of their silkiness, and then the foliage comes to perfection. In general the leaves are 2–3 inches long and broadly oval; but in shape they vary exceedingly, being obovate, orbicular, and not unfrequently approaching to lanceolate. The margins are quite entire, never, in our country, even glandular: the surface is marked with numerous reticulated veins, more or less clothed with soft shaggy hair, at first yellow, white in age, sometimes quite glabrous, especially beneath, and then glaucous: the point generally acute. Stipules oval, entire, rather large, more or less acute, deciduous.

The *Flora Danica S. caprœa*, to which Sir J. E. Smith refers for this plant, has the style cleft and the stigmas bipartite. In the *Salix chrysanthos* of that work, there are two styles to the germen; though in other respects it very faithfully represents my Lapland specimen of *S. lanata*, sent me by Dr. Wikström.

Our figures are taken in part from the cultivated plant in the Chelsea Botanic Garden, originally brought from the Clova mountains; and in part from wild specimens gathered there.—W. J. H.

February 1st 1830.

RUBUS macrophyllus.

Large-leaved Bramble.

ICOSANDRIA Polygynia.

GEN. CHAR. *Cal.* 5-cleft. *Petals* 5. *Berry* superior, of several single-seeded *grains*, placed upon a protuberant spongy *receptacle*.

SPEC. CHAR. Stem arched, somewhat angular and furrowed, hairy, with thinly scattered small uniform prickles. Leaves digitate, of 3 or 5 stalked elliptical or ovate leaflets. Panicle repeatedly divided, somewhat corymbose. Calyx at length reflexed.

SYN. Rubus macrophyllus. *Weihe & Nees Rubi Germ.* 35. *t.* 12.

IN woods, thickets, and hedges, in Sussex, rather rare. In general appearance it most resembles that variety, as we esteem it, of *R. Köhleri*, which has been named *R. pallidus*; but it is well distinguished by the small uniform prickles, and the want of glands on the stem, except those minute inconspicuous ones which are found, perhaps, on almost every species of *Rubus*. The small prickles distinguish it from *R. rhamnifolius* also, from which it further differs by the copious fine hairs of the barren stem, the longer and more flexible leaves, and indeed the whole aspect of the plant.

Stem about half an inch in diameter, upright at first, afterwards decurved and growing to the length of 10 or 15 feet, simple or but little branched the first season, rather soft and spongy, obtusely angular, more or less deeply, often slightly, furrowed, dull green, not glaucous, tinged where exposed to the sun with dull purple; the hairs which cover it soft and pale, spreading in the lower, accumbent in the

upper parts of the plant; usually lost the second year, when the stem often assumes a brighter purple. Prickles very small and slender, yet not innocuous, seated on the angles of the stem, horizontal or somewhat deflexed, with a thick dilated base. Leaves on long stalks, with a few prickles rather more curved than those on the stem; many of them ternate, even on the barren stem: leaflets often six inches long, soft and pliant, flat or a little decurved, grass green above, with a few hairs; more hairy and paler, sometimes, but not generally, hoary beneath; their figure mostly narrowly elliptical or ovate, often with a long point, the middle one usually cordate at the base; their serratures somewhat unequal, rather coarse, mostly blunt with a sudden acute point: leaves of the flowering shoots ternate, often very large, sometimes deeply jagged; the uppermost frequently simple. Panicle varying much according to the vigour of the shoot; sometimes nearly simple with ascending branches, sometimes large, more spreading, and repeatedly divided; its branches with a few small straight prickles and pale inconspicuous glands sprinkled among the downy pubescence. Calyx segments bent back, at least when in fruit, acute, woolly, with glands like those of the panicle, and occasionally a very few minute prickles; setæ we have not seen. Petals greenish white, sometimes faintly tinged with pink. Berries round, black and shining, of rather loosely set grains, acid until quite ripe.

We have doubted whether this plant be *R. macrophyllus* or *R. Schlechtendalii* of *Rubi Germanici*, of neither of which have we seen an authentic specimen. It agrees better in some points with the description and figure of the one, in other points with those of the other. Perhaps a knowledge of the two plants might remove the suspicion we cannot but entertain at present, that they are but varieties of one species.—W. B.

2626.

CYPERUS fuscus.

Brown Cyperus.

TRIANDRIA Monogynia.

GEN. CHAR. *Cor.* none. *Glumes* imbricated, 2-ranked, uniform, compressed. *Style* simple at the base, deciduous. *Seed* naked at the base.

SPEC. CHAR. Spikelets linear-lanceolate, fasciculato-corymbose. Glumes patent. Involucre of 3 unequal leaves. Stem triangular. Stigmas 3.

SYN. Cyperus fuscus. *Linn. Sp. Pl.* 69. *Willd. Sp. Pl. v.* 1. 280. *Host Gram. Austr. v. 3. t. 73. Schrad. Fl. Germ. v.* 1. 118. *Hook. in Fl. Lond. N.S. t.* 89. *Sm. Engl. Fl. v.* 1. 54. *Hook. Brit. Fl.* 19.

ROOT annual, fibrous. Stems 3–5 inches long, sometimes erect, more frequently ascending or even procumbent, triquetrous, naked above, leafy below. Leaves shorter than the stems, from 2 to 3 inches long, linear-acuminate, grooved, sheathing at the base. Involucre of three leaves, similar in appearance to those of the stem, very unequal, patent. Umbel terminal, compound; partial umbels generally pedunculate, sometimes sessile. Peduncles thick, triquetrous, having at their base minute ovate bracteæ. Spikelets clustered, sessile, linear-lanceolate, bearing many flowers. Glumes imbricated, distichous, ovate, obtuse, concave, keeled, yellowish, near the margin deep purple-brown, the keel green, under a high magnifying power appearing rough at the point. Stamens 2–3 in each flower. Anthers ovato-oblong, yellow. Germen minute, obtusely triquetrous, acuminate. Style longer than the germen. Stigmas 3, filiform. Seeds ovate, sharply triquetrous, yellow-brown.

Discovered by Adrian Hardy Haworth, Esq., above ten

years ago, in a low marshy meadow near Little Chelsea, where it still grows, flowering in August and September. It occurs in similar situations upon the Continent, and is not likely to be confounded with any Europæan species of this genus, except the *C. flavescens*, which has, however, spikelets wholly of a yellowish colour, shorter and broader, and having only two stigmas to the flower.

Our specimens were kindly communicated by the Rev. Mr. Bree of Allesley, who gathered them in the place above-mentioned.—W. J. H.

2627.

1724.

Grimmia saxicola.

GRIMMIA saxicola.

Sandstone Grimmia.

CRYPTOGAMIA Musci.

GEN. CHAR. *Fruitstalk* terminal. *Peristome* simple, of 16 entire or perforated, rarely cleft, equidistant teeth.

SPEC. CHAR. Stem scarcely any. Leaves linear-subulate, crisped when dry. Fruitstalks geniculate. Capsule oblongo-ovate. Lid rostrate, straight.

SYN. Grimmia saxicola. *Hook. & Tayl. Musc. Brit. ed. 2.* 67.

G. geniculata. *Schwægr. Suppl. v.* 1. 82. *t.* 22. *Funck, Deutschl. Moose. t.* 11. *n.* 1.

Dicranum saxicola. *Web. & Mohr. Fl. Crypt. Germ.* 167. & 4666.

Campylopus saxicola. *Brid. Meth.* 72.

C. curvifolius. *Brid. Meth.* 78.

Weissia geniculata. *Brid. Meth.* 38.

FOR the discovery of this rare and very distinct Moss in Britain, we are indebted to Mr. Borrer, who gathered it in 1822 upon sandstone, in the course of an occasional torrent, on Black Down, Sussex. It grew intermixed with *Weissia trichodes*, to which it has much general affinity: but the peristome is entirely different in the two species. Dr. Taylo finds it also upon granite rocks in the Dublin mountains.

It grows in rather loose tufts, of an olive-brown colour. Stem scarcely any. Leaves rather subulate than linear, for they are broader at the base, and taper gradually from that broad base upwards, quite entire at the margin. The fruitstalk is more than twice as long as the leaves, singularly curved, and almost always so suddenly as to be genicu-

lated. Capsule straight, scarcely even a little inclined, ovato-oblong, at first green, afterwards reddish brown, and in age slightly furrowed upwards. Calyptra mitriform, cut into a few short, blunt segments at the base. Lid subulate, having a beak almost as long as the capsule. Peristome of sixteen, long, erect, very narrow teeth, mostly entire, sometimes cleft at the extremity, and sometimes perforated: colour red. An annulus or ring at the top of the capsule, between it and the lid, is present.

I have never seen the calyptra cleft on one side, as it is represented by Schwægrichen, tab. 22. f. 12.—W. J. H.

March 1st 1828

RESEDA fruticulosa.

Shrubby Base Rocket.

DODECANDRIA Trigynia.

GEN. CHAR. *Petals* in many segments. *Capsule* of one cell, gaping.

SPEC. CHAR. Leaves all pinnated, waved, glaucous. Calyx 5-partite. Petals 5, nearly equal, trifid.

SYN. Reseda fruticulosa. *Linn. Sp. Pl.* 645. *Willd. Sp. Pl. v.* 2. 878. *Jacq. Coll. v.* 3. 195. *Ic. Rar. t.* 474. *Sm. in Rees's Cycl. n.* 7. *Hook. in Brit. Fl.* 218.

THIS interesting addition to the British Flora was discovered in June 1829, on an old hedge, between Marazion and Penzance, Cornwall, undoubtedly wild, by the Rev. J. S. Tozer. It was at that season in full flower; and Mr. Tozer drew up the following description from the living plant: "Root woody, tapering, which bears in a shrub-like manner several stems. Stems more or less branched, wand-like, hollow, striated, leafy, 2 to 3 feet high. Leaves pinnated. Pinnules linear, with their margins frequently waved, particularly the upper ones. Each leaf is furnished with a minute tooth on each side at the base. Racemes terminal, erect, many-flowered, extremely dense towards the top, pointed. Bracteas linear, solitary at the base of each simple flower-stalk, than which they are a little longer. Calyx inferior, of one leaf, deeply divided into 5 linear-lanceolate, spreading, permanent segments. Petals 5, equal and similar, 3-cleft at the summit, longer than the calyx. Filaments 11. Germen with about 4 angles, tumid. Styles 4, before impregnation erect, afterwards spreading, permanent. Anthers at first of a brownish yellow, becoming very pale buff-yellow as they

advance towards maturity. The whole plant is of a remarkably glaucous green colour. The petals are white with a very slight tinge of green." It is difficult to say, from the appearance of the root of this plant, whether it be biennial or perennial. In Mr. Borrer's garden it is usually the former. *Reseda alba* is considered an annual species, and in that particular alone does it appear to differ from our *R. fruticulosa*. A *Reseda* regarded as *R. alba* has been found, but perhaps not truly wild, in other parts of Britain, as at Stokes Bay near Gosport, by the Rev. W. Stevens Bayton, and at Weston-super-mare, Somersetshire, by Mr. J. Woods. Mr. Mackay considers it "naturalized" on Sandy Mount and Dundrum, and between Cork and Glenmire, Ireland.

In the hope of ascertaining from the Linnæan Herbarium how far *Reseda alba* and *R. fruticulosa* are distinct, Mr. Borrer examined the specimens there, and found the differences between them very slight. *R. alba* has shorter flower-stalks, and more cylindrical racemes, and the terminal lobe of its leaves is more similar to the others (less dilated) than that of *R. fruticulosa*. Again, very nearly allied to our *R. fruticulosa*, is *R. undata* of Linnæus, which all preceding authors seem to have kept distinct both from it and *R. alba*, but which Duby, I am happy to find, has recently united to the latter, in his *Botanicon Gallicum*.

W. J. H.

March 1st 1830.

MYOSOTIS arvensis.

Field Scorpion-grass.

PENTANDRIA Monogynia.

GEN. CHAR. *Cor.* salver-shaped, with 5 obtuse lobes; throat furnished with short valves. *Stam.* included. *Fruit* of 4 one-seeded lobes fixed in the bottom of the calyx.

SPEC. CHAR. Fruit smooth. Calyx with spreading uncinate bristles, half 5-cleft; when in fruit ovate, closed, shorter than the divergent pedicel. Limb of the corolla concave, as long as the tube.

SYN. Myosotis arvensis. *Hoffm. Germ. Fl.* 60. *Lehm. Asperif.* 90. *Fries Nov. Suec. ed.* 2. 65. *Hook. Brit. Fl.* 85. *Host Fl. Austr. v.* 1. 227.

M. intermedia. *Link. Enum. v.* 1. 164. *Reichenb. in Sturm Fl. Deut.* with a figure. *Mert. & Koch Deut. Fl. v.* 2. 46.

M. scorpioides *α.* arvensis. *Linn. Sp. Pl. ed.* 2. 188. *Fl. Suec. ed.* 2. 56. *Sm. Fl. Brit.* 212.

M. annua *α. De Cand. Fl. Fr. ed.* 3. *v.* 3. 629.

M. scorpioides hirsuta. *Raii Syn.* 229.

M. scorpioides arvensis hirsuta. *Ger. Em.* 337. *f.* 4.

Scorpiurus. *n.* 590. *Hall. Hist. v.* 1. 261. (excl. *β. fl. minimo.*)

S. annuus arvensis hirsutus cæruleus. *Moris. v.* 3. 450. *s.* 11. *t.* 31. *f.* 1.

A VERY common plant in cultivated ground, on hedge banks and in groves, flowering throughout the summer, varying much in luxuriance, and in height from 6 to 12 inches or somewhat more.

Root fibrous, annual. Stems usually several, erect from

a curved base, with ascending axillary branches. Lower leaves obtuse, obovate or spathulate, tapering down to a broad winged stalk; upper ones acute, oblong-lanceolate, sessile and partially embracing the stem, which is angular from the edges and midrib of the leaves being decurrent, and, like the leaves, greyish with abundance of soft spreading hairs curved upwards. Racemes terminal, solitary or in pairs, dense and revolute at first, as usual in the genus, and gradually becoming lax and erect as the flowers expand, and then separated by a considerable interval from the uppermost leaf; common stalk cylindrical, its pubescence sometimes patent in the lower part, sometimes appressed throughout. Flowers numerous, alternate, in two rows, on pedicels which originate, without bracteæ, on the upper side of the stalk, and are erect and shorter than the calyx when in flower, but are afterwards gradually lengthened, and become patent, and at length curved downward. Calyx rounded at the base, half 5-cleft, covered with copious bristles, which are patent and strongly hooked at the lower part, but appressed towards the points of the segments; these are acute, erect when in flower, closed over the ripe fruit. Corolla with a yellowish somewhat inflated tube, rather shorter than the calyx, and a concave limb of about the same length (sometimes considerably larger than in our figure), the segments rounded, entire or slightly emarginate, rose-coloured at first, afterwards pale bright blue, with a little white around the yellow scales which almost close the mouth of the tube. Style rather shorter than the tube: stigma capitate, obscurely two-lobed. Lobes of the fruit black and shining, ovate, acute, two-edged, obscurely triangular towards the point.

'*M. arvensis* of *Engl. Bot.* 2558, is preserved in the Linnæan Herbarium, as *M. scorpioides* α. Yet Linnæus in *Fl. Suec.*, speaking of the variations he supposes it to undergo, plainly points to the plant before us as the type of that *var.*; and Fries tells us it is universally recognised in Sweden as the very *M. arvensis* of Linnæus. The trivial name *scorpioides* seems therefore to belong most properly to this species; but every recent author who has retained that name has assigned it to *M. palustris*.

For the name, character, and synonyms to *t.* 2558, the following may be substituted.

MYOSOTIS collina.

Early Scorpion-grass.

SPEC. CHAR. Fruit smooth. Calyx with spreading uncinate bristles; when in fruit open, ventricose, as long as the divergent pedicel. Limb of corolla concave, shorter than the tube. Primordial raceme usually with one distant flower at the base.

SYN. Myosotis collina. *Hoffm. Germ. Fl.* 61. *Reichenb. in Sturm Fl. Deut.* with a figure. *Fries Nov. Suec. ed.* 2. 66. *Hook. Brit. Fl.* 85.

M. arvensis. *Engl. Bot. t.* 2558. excl. syns. *Sm. Engl. Fl. v.* 1. 252. excl. most of the syns.

M. hispida. "*Schlecht.*" *Mert. & Koch. Deut. Fl. v.* 2. 47.

MERTENS and Koch regard this as *M. collina* of Hoffmann, who quotes *M. scorpioides collina* of Ehrhart, which Reichenbach and some other foreign authors also refer to this species. It may perhaps be preserved as such in some copies of Ehrhart's *Decades*, although the specimen in the late Sir J. E. Smith's copy is certainly *M. versicolor*. It grows on the driest banks, wall-tops, &c., flowers the earliest of all our species, and soon withers away.

In Reichenbach's figure, and in some foreign specimens in Dr. Hooker's Herbarium, the one distant flower is wanting. When Smith says that several axillary flowers are sometimes found, he alludes, no doubt, to *M. stricta* of Link, (*M. versicolor* β. Lehm.) which is given as *M. scorp. arvensis* in his copy of Ehrhart. We have no knowledge of that plant as British, although Reichenbach has figured it as *M. arvensis* of Sibthorp. It is well distinguished from *M. versicolor*, to which it is in other respects the most nearly allied, by having no stalk to the raceme, the flowers beginning among the leaves, sometimes from the very base of the stem. W. B.

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March 1st 1830.

MYOSOTIS sylvatica.

Wood Scorpion-grass.

PENTANDRIA Monogynia.

GEN. CHAR. *Cor.* salver-shaped, with 5 obtuse lobes; throat furnished with short valves. *Stam.* included. *Fruit* of 4 one-seeded lobes fixed in the bottom of the calyx.

SPEC. CHAR. Fruit smooth. Calyx with spreading uncinate bristles, deeply 5-cleft; when in fruit ovate, closed, shorter than the divergent pedicel. Limb of corolla flat, longer than the tube. Root-leaves on short dilated stalks.

SYN. Myosotis sylvatica. *Hoffm. Germ. Fl.* 61. *Lehm. Asperif.* 85. *Link. Enum. v.* 1. 165. *Hook. Fl. Scot.* 66. *Reichenb. in Sturm Fl. Deut.* with a figure. *Mert. & Koch Deut. Fl. v.* 2. 43. *Fries Nov. Suec. ed.* 2. 64.

M. montana. *Besser Fl. Gal. Austr. v.* 1. 142.

M. arvensis β. *Wahl. Fl. Suec.* 120.

M. perennis β. *DeCand. Fl. Fr. ed.* 3. *v.* 3. 629.

M. scorpioides. *Fl. Dan. t.* 583. left hand figure.

M. scorpioides γ. *Huds.* 78. *Sm. Fl. Brit.* 213.

M. scorpioides sylvatica. *Ehrh. Herb.* 31.

M. scorpioides latifolia hirsuta. *Merr. Pin.* 82. *Dill. in Raii Syn.* 229. *t.* 9. *f.* 2.

Scorpiurus. *n.* 591. β. *Hall. Hist. v.* 1. 262.

A BRILLIANT ornament of dry shady places, but not of general occurrence. It abounds in Rokeby Park and at Thorpe Arch, Yorkshire. Merrett and Dillenius record it as a native of Kent and of Essex, and it has been gathered in Nottinghamshire, and in various places in the South of

Scotland. The specimen here drawn was sent in May, 1825, by the Rev. R. B. Francis, from a grove at Edgefield, near Holt, Norfolk.

The flowers rival in size and beauty those of *M. palustris* and *M. alpestris* (*M. rupicola* of *Engl. Bot.* 2559). De-Candolle indeed has joined it with both those species under the name of *M. perennis*, and the latter of the two is *M. sylvatica* β. *rupicola* of Fries. *M. palustris* differs decidedly by the figure and the appressed pubescence of the calyx and by several other characters; and *M. alpestris* has the calyx longer and straight when in fruit, with a much smaller proportion of curved bristles among its pubescence, and is further characterized by the long stalks of its root-leaves. It is much less easy to distinguish *M. sylvatica* satisfactorily from *M. arvensis*. The calyx is more deeply cleft, and the bristles on its lower part are shorter and less remarkably hooked, and the whole herb is somewhat less copiously hairy; but perhaps none of these differences, slight as they are, can be depended on as constant. Little remains, besides the greater size of the plant in all its parts, the different proportion of the limb of the corolla to its tube, and the more durable root. This is regarded as perennial; but Wahlenberg and Fries draw a distinction between it and a truly perennial root, the former describing it as *subperennans*, the latter as *perennans*, not *perennis*.

Ehrhart appears to have been the first to bestow on the plant its present name: first as a *var.* in his *Decades*, and afterwards as a species in Reichenbach's *Amœnitates*. The accounts of this species and *M. intermedia* are much confused in *English Flora*.

All our *Myosotides* have the callous point to the leaf mentioned by Linnæus, but it is most conspicuous in the aquatic species. It is formed by the junction of the midrib with two nerves which pervade the whole length of the leaf near the margin.

The generic distinctions afforded by the flowers and fruit are very slight between *Myosotis* and *Anchusa*. In all the European species of the present genus, excluding *Echinospermum* of Lehman, the fruit is without pubescence, even, and highly polished, and excepting in *M. nana*, which has not been found in Britain, the edges of the lobes are perfectly entire. The included stamens alone distinguish *Myosotis* from the New Holland genus *Exarrhena* of Brown.

W. B.

26.31.
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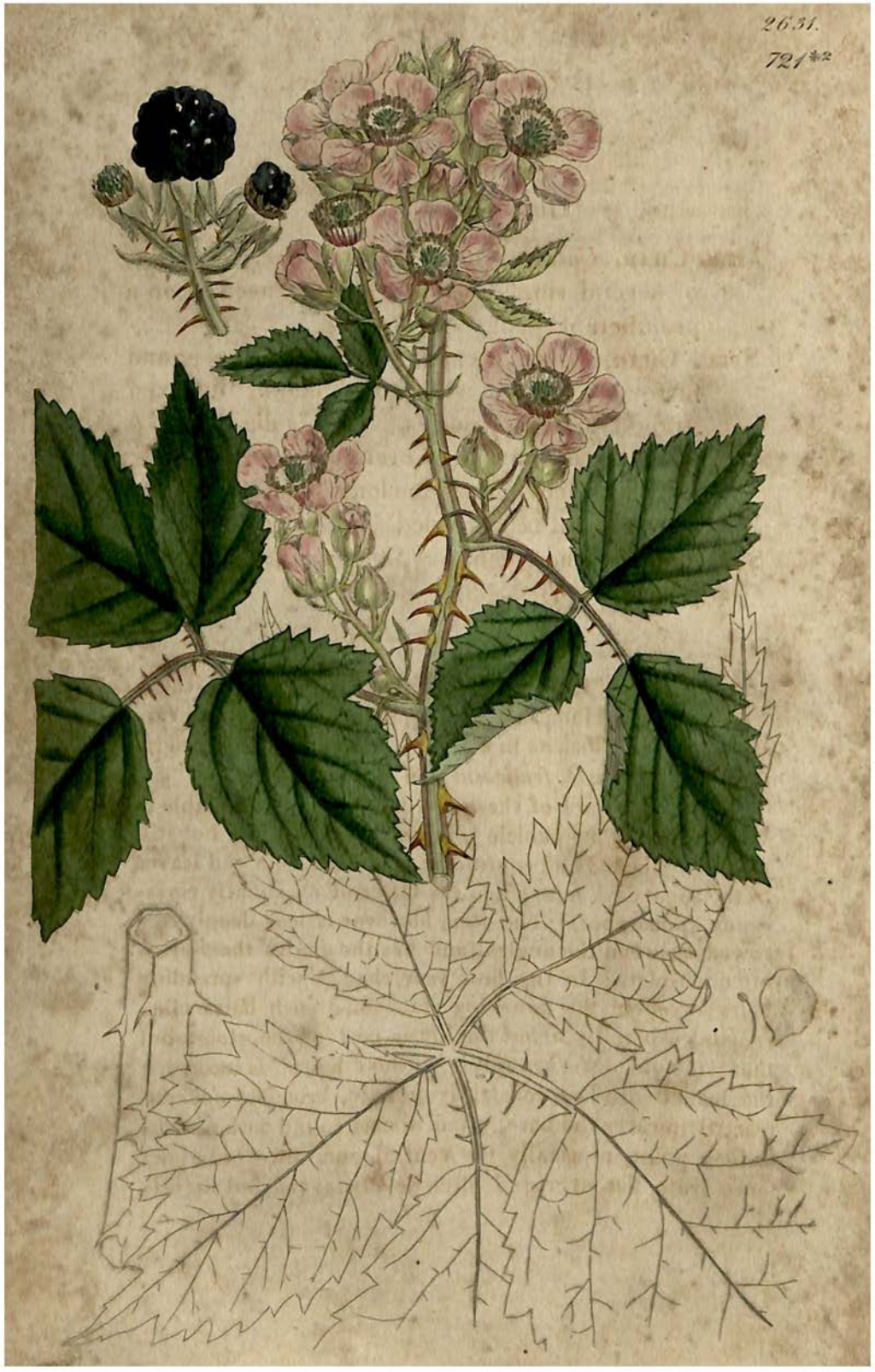


RUBUS leucostachys.

Long-clustered Bramble.

ICOSANDRIA Polygynia.

GEN. CHAR. *Cal.* 5-cleft. *Petals* 5. *Berry* superior, of several single-seeded *grains,* placed upon a protuberant spongy *receptacle.*

SPEC. CHAR. Stem arched, somewhat angular and furrowed, hairy, with horizontal or deflexed straight uniform prickles. Leaves digitate, of 5 or 3 stalked roundish or ovate, somewhat cordate flattish leaflets. Panicle elongated, slender; its branches but little divided. Calyx reflexed.

SYN. Rubus leucostachys. *Sm. Engl. Fl. v.* 2. 403. *Lindl. Syn. Brit.* 93.

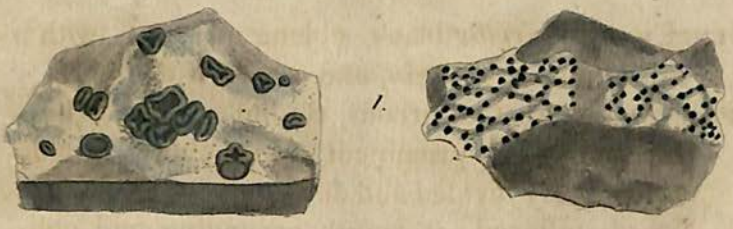
APPARENTLY a little known Bramble. Mr. Bicheno has found it in Hampshire and Berkshire, and it is not rare in hedges and thickets in Sussex, although of less general occurrence than *R. fruticosus* and *R. rhamnifolius.*

With the former of these two species it is most liable to be confounded, its panicle being of a similar form, but still more lengthened and contracted, and both stem and leaves of the same dark hues; and the latter of an equally coriaceous appearance. The stem however is less deeply furrowed between the angles, and has the angles themselves often obsolete; in the first year shaggy with spreading hairs; even in the flowering state some such hairs often remain, especially about the lower part of the stem: but that "the old stems are rarely without hairs" is incorrect, the leaflets are less constantly quinate, broader, not contracted towards the base, often almost round with a short sudden point, especially the central one, at other times more ovate, flat, or waved often deeply jagged, but slightly

or not at all arched; the under side usually shaggy with copious, shining, mostly yellowish hairs, and sometimes pale green, sometimes hoary, sometimes white. Minute sessile glands are sprinkled among the pubescence both of the stem and of the panicle-branches. In the latter situation they vary in abundance, and sometimes a few setæ, "seldom projecting so far as the copious hairs," are found. The calyx-segments are broad with a short acute point, white with down, like the panicle, and sprinkled with sessile or short-stalked, often very inconspicuous, glands, and less generally with a few small prickles. The petals and stamina are often of a fuller pink than is usual in our other species, *R. fruticosus* excepted. The berry is purplish black, without bloom, of rather looser and less depressed grains than that of *R. fruticosus*, and of a sweet taste when quite ripe.

There is a Bramble of strong growth, referable, we think, to this species, in which the stem is less shaggy, but grey with appressed starry hairs; the prickles are very strong, long, and straight; the leaflets flatter, rounder, more heart-shaped, very white and less hairy beneath; the flowers somewhat smaller, often white. Mr. Forster finds this variety in Epping Forest, and it is not more rare than the other in Sussex, especially in the forests. We believe it to be the *R. diversifolius* of Lindley, *Syn. Brit. p. 93.*

We can refer neither of these forms to any of the *Rubi* described by Weihe and Nees von Esenbeck. We had suspected that their *R. vestitus* might be the same species, but an authentic specimen, for which we are indebted to Mr. Lindley, proves it different. W. B.



1.

2.

Opegrapha cerebrina. Fig. 1.

_____ tessellata. Fig. 2.

2632. (Fig. 1.)

OPEGRAPHA cerebrina.

Tumid-crusted Opegrapha.

CRYPTOGAMIA Lichenes.

GEN. CHAR. *Lirellæ* black, oblong or linear, with a raised proper *margin*, and a narrow *disk*.

SPEC. CHAR. Crust tartareous, continuous, very white. Lirellæ naked, prominent, short, obtuse, simple or variously divided and deformed; their margin broad, inflexed, at length expanding and obliterated.

SYN. Opegrapha cerebrina. *DeCand. Fl. Fr. v.* 2. 312. *Chev. Hist. des Hypox.* 57. *t.* 12. *f.* 4.
Lecidea plocina. *Ach. Lich. Univ.* 155. *Syn.* 16.

COMMUNICATED long ago by the Rev. John Harriman, on calcareous stone, from the North of England. It had previously been gathered by Mr. Dickson. Acharius says his specimen was from England. Out of Britain it appears to have been observed only by M. Ramond, who found it in the Pyrenees.

Crust of inconsiderable but unequal thickness, of uncertain extent and irregular outline, bordered more or less perceptibly with black, without cracks, but frequently interrupted, as if formed by the confluence of different small pulvinulate patches, (an appearance owing perhaps to the uneven surface of the stone,) pure white, unpolished, looking as if powdery to the naked eye, but in reality solid, and minutely pitted rather than wrinkled; internally also white and chalk-like. Lirellæ without any accessory margin from the crust, full black, sometimes polished, but perhaps only from having been rubbed, not very numerous, mostly in clusters but occasionally solitary; at first oblong, or so short as to be almost orbicular, with an inflexed, convex,

even margin closed over the disk; soon cloven at one or both ends, becoming triangular, quadrangular, or more irregular in figure, and the margin expanding and disclosing the disk, often so widely as to give to the lirella a close resemblance to an irregular *patellula*, with sometimes a prominent and crenulate, sometimes an obliterated margin. Often, too, the lirellæ become confluent, and the clusters assume the appearance of imperfect *tricæ* of a *Gyrophora*. Their base is sunk in the crust, and even in the stone beneath.

It is not surprising that Acharius should, from the examination of a single specimen, have placed this anomalous production amongst the *Lecideæ*. Its fructification, however, in its most regular state, is that of an *Opegrapha*, and indeed, very similar, although shorter, to the lirellæ of *O. tesserata*. The crust distinguishes the plant decidedly from that species, and, when accurately examined, from every other known *Opegrapha*.

It is surely better to regard the *Graphides* of Acharius, as only a section of the genus *Opegrapha*, with which they entirely agree in general appearance. The accessory margin to the lirellæ, more or less complete in different species, is an unsatisfactory distinction, and the other characters assigned by the great Swedish Lichenist are, if constant, too minute for general use.—W. B.

2632. (Fig. 2.)

OPEGRAPHA tesserata.

Tessellated Opegrapha.

CRYPTOGAMIA Lichenes.

GEN. CHAR. *Lirellæ* black, oblong or linear, with a raised proper *margin* and a narrow *disk*.

SPEC. CHAR. Crust tartareous, areolate, brownish grey. Lirellæ naked, prominent, short, obtuse, simple or slightly divided, with a broad inflexed margin.

SYN. Opegrapha tesserata. *DeCand. Fl. Fr. v.* 2. 313. *Chev. Hist. des Hypox.* 51. *t.* 11. *f.* 1.
O. petræa. *Ach. Syn.* 72.

So decidedly is this species distinguished by its crust, that no doubt can arise about it, although the specimen here drawn is the only one that we have seen. It was gathered by Mr. W. Robertson on Holwick Scar, by the Tees, in Yorkshire. Acharius gives it as a native of Scotland. It was first described in *Flore Française*, from specimens collected by M. DeCandolle in the Alps; and it is well figured in the *Histoire Générale des Hypoxylons* quoted above.

The crust forms patches of considerable extent, and is said to be partially bordered with a black line when perfect. It is of a structure not uncommon in various other genera of Lichens, but not hitherto observed in any other *Opegrapha*; being composed of granulations at first scattered and convex, afterward crowded together and forming small angular areolæ, irregular in shape and size, the interstices of which are barely visible to the naked eye. The general surface is rather uneven, unpolished, of a brownish grey with a tinge of red; the internal substance white. Between the areolæ, and more rarely through their substance, arise numerous, small, dull black lirellæ, some solitary, some crowded in little clusters. They are slightly prominent,

blong, rounded at the ends, straight or somewhat curved, undivided or forked at one or both extremities; their margin convex, even or slightly wrinkled, and so inflexed as almost entirely to conceal, in our specimen, the disk, which is represented more open in Chevallier's figure.

The lirellæ of this species considerably resemble those of *O. Persoonii*, *t.* 2345, but the areolate crust distinguishes it at once both from that plant and from *O. saxatilis* of *Flore Française*, (*O. saxicola* of Acharius, *Syn. Lich. p.* 71.) from which *O. calcarea* (*Engl. Bot.* 1790.) seems to differ but slightly and unessentially. It is much to be doubted whether *O. Persoonii* be more than an imperfect state of *O. lithyrga* of Acharius (*Syn. Lich. p.* 72.), whether this again be distinct from *O. saxatilis*, and whether the three ought not to be regarded as states of *O. notha* of Acharius (*Syn. Lich. p.* 76. *O. notha* and *diaphora Engl. Bot.* 1890 and 2280.) altered by growing on stone. This species we would call *O. varia*; a name given to one of its numerous varieties by Persoon, who first described it. *O. tridens* β. *arenaria*, (*Syn. Lich. p.* 79.) we believe to be merely *O. lithyrga* on coarser stone. *O. tridens* α. may safely be referred, as a variety, to *O. varia*. The *O. Persoonii* γ. *strepsodina* of Acharius, (*Syn. Lich. p.* 71.) the original *Lichen simplex* of Davies*, who afterwards joined with it a real state of *O. Persoonii*, appears to be properly a *Lecidea*, with extremely irregular patellulæ. This is represented on slate in *Engl. Bot. t.* 2152. The other specimen figured in that plate seems distinct, and is *Lecanora milvina* β. *privigna* of Acharius (*Syn. Lich. p.* 15). W. B.

* *Trans. of Linn. Soc. v.* 2. *p.* 283. *t.* 28. *f.* 2.

ERIOPHORUM pubescens.

Downy-stalked Cotton-grass.

TRIANDRIA Monogynia.

GEN. CHAR. *Cor.* none. *Glumes* imbricated all round, uniform, expanded. *Seed* subtended by numerous very long hairs.

SPEC. CHAR. Stem angular upwards. Leaves flat, lanceolate, with a triangular point. Stalks of the spikes downy. Hairs twice the length of the spike.

SYN. Eriophorum pubescens. *Sm. Engl. Fl. v.* 1. 68. *Hook. Brit. Fl.* 25.

E. angustifolium. *Poit. et Turp. Par. t.* 51. (*Sm.*)

E. latifolium. *Schrad. Fl. Germ. v.* 1. 154. (excl. syn.)

ROOT perennial, apparently creeping, but broken in the specimen here figured and described. Stem triangular, leafy, especially below, and at the very base clothed thickly with the old decayed leaves. Leaves linear-acuminate, keeled below, flatter upwards, narrow and triquetrous at the point; the margins, especially at the points, scabrous, cauline ones short with long cylindrical or somewhat triangular sheaths, which are brown at their summits. Bracteas large foliaceous, sometimes as long as the peduncles, lanceolate, acuminate, concave below and there dark brownish-black, the points triquetrous and scabrous. Spikes ovate, 2 to 8 or 9, peduncles varying in length, curved, somewhat angular, more or less distinctly scabrous (not downy) with short rigid often shining brownish hairs, or points. Glumes ovato-acuminate, membranaceous, dingy-brown, more or less pale at the base and margins. Stamens protruded considerably beyond the glumes. Anthers linear, yellow. Seed obovato-triquetrous, rather obtuse, brown : surround-

ed by white silky hairs, which are twice and frequently thrice as long as the spikes.

Such is the description we have drawn up from original specimens of the *Eriophorum pubescens* of Smith, communicated from Cherry Hinton Moor, Cambridgeshire, by the kindness of the Rev. J. Holme: but if the character is to depend upon the rough peduncles, there is no question but this is the *E. latifolium* of Schrader, however incorrect that author may have been in his synonyms. It is quite certain too, that the plant is by no means of unfrequent occurrence, having been confounded with *E. polystachion*, a species with smooth peduncles. Authors, indeed, have been sadly confused with the many-spiked species of *Eriophorum*, nor can I persuade myself that the characters laid down for distinguishing *E. polystachion*, *E. angustifolium*, and *E. gracile* are such as can be depended upon. In this opinion I know myself to be supported by the accurate Mr. Wm. Wilson, who has repeatedly sought for distinguishing marks in living plants of the three in question, but in vain.

W. J. H.

MEDICAGO denticulata.
Toothed Medick.

DIADELPHIA Decandria.

GEN. CHAR. *Calyx* somewhat cylindrical, 5-cleft. *Keel* rather distant from the vexillum. *Stamens* diadelphous. *Pod* many-seeded, variable in form, always compressed, and falcate or spirally twisted. *DeCand.*

SPEC. CHAR. Annual, glabrous. Stipulas deeply toothed. Pods spirally twisted, consisting of 2 or 3 rather distant turns, flat above and below, deeply reticulate, with a thin margin, more or less spinous. Spines subulate, divergent, usually hooked at the extremity.

Var. α. brevispina. Spines very short, scarcely hooked, and nearly parallel to the axis.

SYN. Medicago denticulata. *Willd. Sp. Pl. v.* 3. 1414.
M. apiculata. *Willd. Sp. Pl. v.*3. 1414. *Ser. in DeCand. Prod. v.* 2. 175.
M. muricata, γ. *Desr. in Lam. Dict. v.* 3. 635.
Medica cochleata minor polycarpos, &c. *Moris. Oxon. v.* 1. 144. *n.* 18, 19. *Ic. sect.* 2. *t.* 15. *f.* 13, 14.

Var. β. vulgaris. Spines about half the diameter of the pod, divergent, hooked at the extremity.

SYN. Medicago denticulata. *Ser. in DeCand. Prodr. v.* 2. 176. *Smith Pl. of S. Kent.* 43. *and* 71. *t.* 1. *f.* 4.
M. polycarpa. *Willd. Enum. Suppl.* 52.
M. ciliaris. *Savi Cent.* 148. *Balb. Cat.* 29. *Gou. Fl. Monsp.* 204. non *Willd.*
M. echinata. *Bouch. Abbev.* 56.
M. distans. *Poir. Dict. v.* 3. 526. *Ser. in DeCand. Prodr. v.* 2. 179.
M. flexuosa. *Ten. Cat.* 1819. 59. *Ser. in DeCand. Prodr. v.* 2. 176.
M. polycephala. *Hortul.* ex *Ser.*

IN Sir J. E. Smith's Herbarium, specimens of this plant are mixed with others of the *M. maculata* gathered at Cley

in Norfolk; and to these he probably alludes in his observations on his var. β. of *M. maculata*, *vol. 3. p. 320* of his *English Flora*. The Rev. G. E. Smith, who has accurately distinguished this species from the *M. maculata*, (the pod of which is represented at fig. 1,) has sent it to Mr. Sowerby from the coast of Kent, where he finds it common. It is equally common on the coast of Sussex, as we learn from Mr. Borrer, who also has gathered it at Cley.

It is one of the most abundant species in the centre and south of Europe, as well as on the north coast of Africa, and extending as far east as the north of Persia. It has also become naturalized in various other parts of the world, even within the tropics, where its seeds have been transported with European grains.

Whole plant glabrous. Stem, as in most of the annual species, procumbent, or slightly ascendent, angular, and varying in length from a few inches to two or three feet, according to soil and climate. Stipulas lanceolate, semisagittate, with the margins deeply toothed. Leafstalks usually from half an inch to an inch long. Leaflets rather shorter than the petioles, usually crenate, obcordate, sometimes obovate, or even rounded at the base as well as at the apex: toothed at the apex, with the midrib produced into a little point: the lateral ones nearly sessile, and opposed to each other at a short distance below the insertion of the terminal leaflet. Peduncles usually shorter than the leaves, bearing sometimes one or two only, sometimes five or six or even more very small yellow flowers. Pods from two to three lines in diameter, entirely glabrous, brown, or more often black at their full maturity, consisting frequently of a turn and a half only, or two turns in the British specimens, but more generally of two or three turns in the more luxuriant specimens from the south of Europe; these turns or spiral rings are somewhat distant, much reticulated on the whole surface, and have at the edge a double row of subulate divergent spines more or less hooked at the extremity, the two rows separated by the somewhat prominent but thin margin of the pod, which margin is neither furrowed as in *M. maculata*, nor thick and callous as in the *M. præcox*.

The spines vary much in length, being sometimes scarcely perceptible in some Continental specimens of the var. α, and often near two lines in length in the var. β.

Gærtner's figure of *M. coronata*, *De Fruct. 2. t. 155. f. 7*, which is usually referred to this species, appears to me to represent the *M. Terebellum* Willd. Morison's figures cited above, though not very accurate, belong I think both of them to some varieties of this species. I had also considered the *M. lappacea* of Lamarck as a large variety of *M. denticulata*, but it may perhaps be distinct; it is not however a native of Britain.—G. Bentham.

MEDICAGO minima.

Little Bur Medick.

DIADELPHIA Decandria.

GEN. CHAR. *Calyx* somewhat cylindrical, 5-cleft. *Keel* rather distant from the vexillum. *Stamens* diadelphous. *Pod* many-seeded, variable in form, always compressed, and falcate or spirally twisted. *DeCand.*

SPEC. CHAR. Annual, hairy. Stipulas nearly entire. Pods spirally twisted, consisting of about 4 turns, globular or convex above and below, with a thin margin. Spines numerous, subulate, diverging from the axis, and hooked at the extremity.

SYN. Medicago minima. *Desr. in Lam. Dict. v. 3.* 636. *Willd. Sp. Pl. v. 3.* 1418. *Ser. in DeCand. Prodr. v. 2.* 178. *var. α. & β. Sm. Eng. Fl. v. 3.* 321.

M. hirsuta. *All. Ped. n.* 1156.

M. græca. *Hornem. Cat. Hort. Hafn.* 24. *Willd. Enum.* 805. *Ser. in DeCand. Prodr. v. 2.* 178.

M. polymorpha minima. *Linn. Sp. Pl.* 1099.

Medica cochleata polycarpos annua, &c. *Moris. Oxon. v. 1.* 154. *n.* 20. *Ic. sect. 2. t.* 15. *f.* 15.

THE above synonyms refer to the var. *α. brevispina*, the only one hitherto found in Britain. The *M. mollissima* Roth. belongs to the var. *β. longispina*, and the *M. recta* Desf. constitutes a third variety, namely, *γ. uniflora.*

A native of the driest sands. The specimen here figured was gathered by Mr. Borrer in June 1828 in Romney Warren, Kent. The Rev. G. E. Smith has found it in

abundance between Sandwich and Pegwell in the same county; and Mr. E. Forster, in the neighbourhood of Thetford. It is mentioned in *English Flora* as growing at Narburgh, Norfolk, and near Newmarket. It is common in the centre and south of Europe, and all round the Mediterranean.

Whole plant, excepting the pods and the old stems, covered with soft adpressed and whitish hairs. Stems usually numerous and crowded, procumbent, angular, hairy, and varying in length from two or three inches to a foot and a half. Stipulas broadly lanceolate, semi-sagittate, connate at the base, with the margins nearly entire. Leaves smaller than in most species. Leaflets generally obovate or obcordate, toothed at the apex, the lateral ones sessile, and opposed to each other a little below the insertion of the terminal one. Peduncles generally shorter than the leaves. Flowers yellow, about the size of those of *M. lupulina*, from 2 to 5 or 6 on each peduncle. Pods spirally twisted, globular, about the size of a sweet-pea, if taken without the spines: consisting almost universally of four complete turns with part of another: scarcely reticulate on the surface, and bordered by a double row of divergent, subulate spines, hooked at the extremity, the two rows separated by the slightly prominent but thin and unfurrowed margin of the pod. In the most common variety, the only one found in Britain, the spines are much shorter than the diameter of the pod. In the two other varieties they are sometimes nearly twice that length.—G. Bentham.

April 1st 1830.

CHÆROPHYLLUM aromaticum.

Broad-leaved Chervil.

PENTANDRIA Digynia.

GEN. CHAR. *Cal.* margin obsolete. *Petals* emarginate and inflected. *Fruit* somewhat fusiform, slightly compressed. *Carpophore* bifid. *Achenia* convex, with 5 equal, flattish ribs; the lateral ones close to margin of the *commisure,* which is furnished with a deep furrow. *Vittæ* solitary. *Partial involucrum* of many leaves.

SPEC. CHAR. Leaves bipinnate: leaflets broad, oblong, acuminate, sharply serrated, hairy underneath. Styles short, recurved. Stem rough with bristly hairs.

SYN. Chærophyllum aromaticum. *Linn. Sp. Pl.* 371. *Jacq. Aust. t.* 150. *Matt. Sil.* 209. *Hoffm. Germ.* 104. *Willd. Sp. Pl. v.* 3. 1654. *Don in Tr. of Wern. Soc. v.* 3. 300. *Hook. Scot.* 94.

Myrrhis aromatica. *Spreng. Prodr.* 28. *Syst. Veg. v.* 1. 902. *Smith Engl. Fl. v.* 2. 52.

Scandix tinctoria. *Scop. Carn. v.* 1. 212.

Myrrhis foliis podograriæ. *Riv. Pent. Irr. t.* 53.

Cerefolium rugoso angelicæ folio, aromaticum. *Bocc. Mus.* 29. *t.* 19.

Angelica sylvestris hirsuta inodora. *Bauh. Pin.* 156.

DISCOVERED by the late Mr. George Don near Guthrie, about seven miles east of Forfar, undoubtedly wild. Root perennial, somewhat fusiform. Stem upright, stiff, branched, from 2 to 3 feet high, furrowed and angular, rough with bristly hairs, especially the lower half, which is marked with numerous dark purple spots; the joints slightly swollen. Leaves trichotomously bipinnate; the radical ones on longer footstalks. Leaflets oblong, acumi-

nate, sharply, and often almost doubly serrated, most frequently unequal at the base, sometimes cordate, or rarely, as in the case of the terminal leaflet, attenuated at both ends, either stalked or sessile, varying from 1 to 4 inches long, and from half an inch to nearly 2 inches in breadth; smooth and green above; somewhat paler and slightly hairy beneath. Footstalks furrowed, purplish, and bristly; dilated at the base; those of the upper leaves shorter, and sheathing the stem. Umbels loose, spreading. Peduncles and pedicels filiform, quite smooth. Involucrum of a single, short, lanceolate, attenuated, fringed, membranous leaf, or generally entirely wanting. Partial involucrum of from 8 to 10 leaflets, which are lanceolate, attenuated into a long point, membranous, and fringed at the margin, longer than the pedicels. Flowers white, the central sessile one and a few others only fertile. Calyx wholly adherent; the margin obsolete. Petals obovate, emarginate, with an inflected point; the outer ones somewhat larger. Styles short, recurved. Stigmas more rarely perfect, slightly capitate. Fruit about half an inch long, quite smooth, compressed at the sides, crowned with the persistent styles, linear in the young state; but as it advances to maturity it becomes contracted towards the top, and is then somewhat fusiform. Achenia, convex at the back, with 5 broad flattish ribs, which frequently become confluent at the top, and furnished at the commisure with a deep and broad channel; the 2 lateral ribs situate close to the edge of the commisure. Furrows shallow, and narrow. Vittæ solitary in the furrows; but at the commisure they are 4, and more closely approximated than in the other species of this genus. Carpophore compressed, two-edged, and bifid at the top; edges blunt. Epigynous disk depressed.

The genus *Myrrhis* being very properly limited to *M. odorata*, the *Scandix odorata* of Linnæus, we have followed Hoffmann, Koch, and DeCandolle, in restoring the appellation of *Chærophyllum* to that group which includes the greater part of the Linnæan species of this genus. The Scottish specimens are much smaller than the plant represented by Jacquin, and our description, which has been drawn up with great care, will be found to differ in some important points from that given in *English Flora;* but there can be no question as to the identity of the species.—D. Don.

Fig. 1.

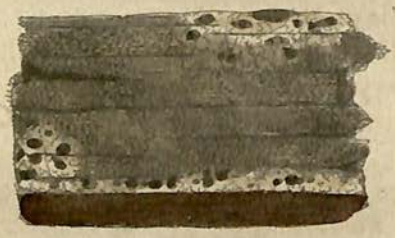


Fig. 2.

Verrucaria niveo-atra Fig. 1.

——— *rudis.* Fig. 2.

2637. (Fig. 1.)

VERRUCARIA niveo-atra.

Snowy-crusted Verrucaria.

CRYPTOGAMIA Lichenes.

GEN. CHAR. *Tubercles* of a different substance from the *thallus*, simple, convex, not expanding, but furnished with a central pore, and inclosing a somewhat gelatinous nucleus.

SPEC. CHAR. Crust indeterminate, thin, rugose, somewhat powdery, white. Tubercles very minute, orbicular, half-immersed; their apex naked, depressed, rugose.

AS this Lichen, although by no means inconspicuous, has been observed in but few places, it is probably rare. It has been found on old timber in the wall of a house at Bramber, Sussex, and on elms at Portslade in the same county, and in various parts of Suffolk. The late Sir T. Gage gathered it at Hengrave.

Crust spreading irregularly to considerable extent, extremely thin, very minutely rugose, with more or less of a powdery appearance, most often slightly cracked; snowy white externally, especially when dry; internally, greenish with a tinge of yellow. Tubercles mere dots to the naked eye, very numerous, irregularly scattered, sometimes crowded here and there in little clusters, and deformed by mutual pressure; otherwise more or less regularly orbicular; for the most part nearly flat, sometimes more convex but not much raised above the level of the crust in which their base is immersed; their surface, full black or somewhat pruinose, irregularly rugose in general, whence the minute orifice is usually difficult of detection. Nucleus mostly obscure, but Mr. Sowerby found it pale and almost filling the shell in the specimen that he has drawn.

In general appearance this Lichen approaches more nearly

to the powdery state of *V. biformis* than to any other British *Verrucaria*; but the crust differs, and the tubercles of that plant are larger and of a different structure. *V. farrea* of Acharius appears more nearly allied to that species than to the present. This may possibly have been sometimes passed over as a small state of *Lecidea corticola*. It still more nearly resembles *Spiloma punctatum* at first sight, but both crust and fructification seem intrinsically different.

W. B.

2637 (Fig. 2.)

VERRUCARIA rudis.

Rugged Verrucaria.

CRYPTOGAMIA Lichenes.

GEN. CHAR. *Tubercles* of a different substance from the *thallus*, simple, convex, not expanding, but furnished with a central pore, and inclosing a somewhat gelatinous nucleus.

SPEC. CHAR. Crust indeterminate, somewhat gelatinous, thin, continuous, uneven with granulations, grey or blackish. Tubercles very minute, prominent, irregularly spherical, very rugged, dull black.

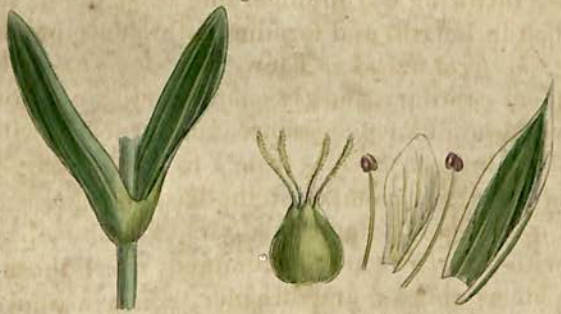
RARELY observed, but extremely liable to be overlooked. It grows on boarded buildings and on rugged oaks. Our specimens are from Hurstpierpoint and Albourne, Sussex, and Esher, Surrey.

The crust, which spreads widely, is composed of minute confluent granulations of a dull dark unpolished grey approaching to black, with a tinge of brown, paler and somewhat gelatinous in appearance when wet; internally with a pale dull shade of green: sometimes on oak-bark it is more solid, often minutely cracked, olive-grey, but still varying in some parts to almost black. Tubercles copiously scattered, but seldom crowded, prominent; sometimes brownish as if veiled by the crust, sometimes naked and more black, and often a little shining; in both cases irregular in outline and very rugged: orifice minute and irregular, often not discoverable. Nucleus pale brown or whitish, looking gelatinous when wet, and filling the shell; shrinking but little, often not at all, in drying. The tubercles are occasionally found, in some parts of the patch, seated on a dark lead-coloured film, with scarcely any of the brownish crust about them, as if the thallus were composed of such

a film and of granulations subsequently formed upon it: it is probable, however, that this film is no other than *Spiloma microscopicum*, over which the *Verrucaria* has spread in the progress of its growth.

This obscure production appears, like *V. niveo-atra*, to have hitherto escaped the notice of every writer on the Lichens. It differs from that species in the colour and texture of the crust, and the prominence and more dingy hue of the tubercles, as well as their more generally conspicuous nucleus. It seems to bear some affinity to *V. leucocephala* in the structure of the tubercle, the shell being thinner and apparently softer than in the generality of the crustaceous *Verrucariæ*; and small and imperfect patches of that species are so intermixed with all our specimens of *V. rudis* upon bark, as almost to lead to a suspicion whether the two be really distinct. Yet the tubercles are not powdered, nor do they partake at all of the tendency to a cylindrical figure so observable both in the denudated state and in the more common appearance of *V. leucocephala*; and they differ further by their minute size, rugged surface, and hardly discoverable orifice: the nature of the crust, too, seems essentially different. To distinguish *V. rudis* in its palest state from *V. biformis* and *V. olivacea*, it is only necessary to advert to the more even crust and the larger and more distinctly perforated tubercles of both those species.

W. B.



May 1st 1830.

ARENARIA rubella.

Little Red Sandwort.

DECANDRIA Trigynia.

GEN. CHAR. *Cal.* 5-leaved. *Petals* 5, undivided. *Capsule* of one cell, and of from 3 to 6 valves, with many seeds.

SPEC. CHAR. Leaves linear, blunt, with 3 prominent ribs. Stems pubescent, mostly 1-flowered. Calyx-leaves 3-ribbed, longer than the petals.

SYN. Arenaria rubella. *Smith Engl. Fl. v.* 4. 267.
A. cherlerifolia. *Don Cat. of Forf. Gard.* 1813. 9.
A. hirta. *Wormsk. in Fl. Dan. t.* 1646?
Alsine rubella. *Wahl. Lapp.* 128. *t.* 6.

FOUND by the late Mr. J. Mackay and Mr. G. Don, many years ago, on the summit of Ben Lawers. Dr. Greville has since detected it on Craig Chailleach, also in Breadalbane, and determined it to be the *Alsine rubella* of Wahlenberg. The root is fibrous, and perennial. Stems numerous, throwing out innumerable leafy shoots scarcely half an inch in length, and forming little dense patches, resembling *Cherleria sedoides*. Flowering stems an inch high, very slender, capillary, mostly simple and single-flowered, clothed with glandular pubescence, and furnished with from 2 to 4 pair of leaves. Leaves from 1 to 2 lines long, linear, blunt, and pointless, connate at the base, fringed occasionally with a few short, glandular hairs, flat above, marked beneath with 2 furrows and 3 prominent ribs; those of the flowering stems shorter and broader, concave above, and united at the base into a short membranous sheath. Calyx oblong, glandular, of 5 equal ovate-lanceolate, acuminate,

erect, somewhat connivent leaves, membranous at the margin, and furnished with 3 equidistant conspicuous ribs. Petals obovate, shorter than the calyx, in the Scottish specimens white. Anthers red. Stigmas 3 or 4, filiform, spreading, copiously papillose; in five out of six flowers we found them uniformly four in number. Capsule of 3 or 4 valves, with many lenticular, brown seeds.—D. Don.

OROBANCHE caryophyllacea.

Clove-scented Broom-rape.

GEN. CHAR. *Cal.* of 2 leaves or deep lobes, lateral. A gland under the germen. *Caps.* of 1 cell, with 4 receptacles.

SPEC. CHAR. Stem simple. Tube of the corolla inflated, especially above; limb spreading, 2-lipped; upper lip broad, emarginate; lower with 3 lobes; all the segments obtuse, wavy. Stamens hairy, especially at the base within. Style pubescent. Stigma 2-lobed (dark-purple).

SYN. Orobanche caryophyllacea. *Sm. in Tr. of Linn. Soc. v. 4. 169. Willd. Sp. Pl. v. 3. 348. Smith Pl. of S. Kent. 34. t. 3. f. 4.*

Orobanche Galii. *Bot. Gall. 349.*

STEM erect, simple, 10 inches to a foot high, terete, somewhat furrowed, hollow within, swollen at the base, glanduloso-pubescent, as is almost every part of the plant, especially upward, of a pale dingy yellow colour tinged with purple, scaly: the scales numerous below, more rare upward, ovato-acuminate or lanceolate, soon becoming of a dark brown colour and withered. Flowers in a large, lax, terminal, solitary spike. Bracteas lanceolate, single. Calyx of 2 deep lobes, often of 2 distinct leaves, the segments bifid, divisions lanceolate, occupying the front of the flowers. Corolla large, pale rather dingy purple. Tube swollen, especially on the upper part behind. Limb two-lipped, spreading; upper lip very broad, notched, lower one in 3 equal, rounded, waved lobes, distinctly veined with darker purple lines. Stamens 4, inserted in the lower part of the tube of the corolla. Filaments bent, glanduloso-pubescent, especially at the base within. Anthers 2-celled, each cell

sharp-pointed. Germen ovate, with a gland at its base, glabrous, tapering upwards into a style as long as the tube of the corolla. Stigma of 2 large rounded lobes, deep purple.

This new British *Orobanche* has been discovered in the neighbourhood of Folkstone by the Rev. Gerard Edward Smith, author of an interesting "Catalogue of Rare Plants of South Kent," and communicated by him to Mr. Sowerby. The stations given are hedges and waste ground below Cæsar's Camp hill, the Sugar-loaf hill, in East-wear Bay, near Lydden Spout, and eastwards, to Dover, growing upon the roots of *Galium Mollugo*, *Rubus fruticosus*, &c. Its discoverer has the merit of determining it to be the *O. caryophyllacea* of Smith in *Linn. Trans.*; a species which has, as we are there assured, been confounded on the one hand with *O. major*, and on the other with *O. elatior*. From the former it differs in its stamens being internally hairy at the base, and in the spreading limb of the corolla; from the latter, by the rounded segments of the limb; from both, by its deep purple-coloured stigma and larger and more distant flowers. It quite agrees with Sir J. E. Smith's own specimens, as well as with my Swiss and French specimens of *O. caryophyllacea*, as far as can be judged from dried plants.

DeCandolle in his *Flore Française* has referred *O. caryophyllacea* to the *O. vulgaris* of Lamarck: and this, in DeCandolle and Duby's *Botanicon Gallicum*, is made, with a mark of doubt, the var. β. of *O. Rapum* of Thuillier. It seems to agree better with the *O. Galii* of that work, the "*O. Galii-Molluginis* of *Vauch. Monogr. t. 7*;" and Mr. G. E. Smith also finds it a parasite upon the *Galium*. I abstain from other references, because without accurate figures, or the most laboured descriptions, and those made from recent specimens, it is hardly possible to determine a species of *Orobanche*. W. J. H.

May 1st 1836

ANTENNARIA hyperborea.

Northern Cudweed.

SYNGENESIA Polygamia-Superflua.

GEN. CHAR. *Flowers* dicœcious. *Involucrum* imbricate; with scariose, coloured scales. *Receptacle* naked. *Male florets* tubular, 5-toothed, with the rays of the pappus thickened towards the extremity, toothed, or brush-shaped. *Female florets* filiform, with an oblique limb, and a slender, capillary pappus.

SPEC. CHAR. Leaves uniform, spathulate, woolly on both sides. Scales of the female involucrum strap-shaped, blunt.

SYN. Gnaphalium hyperboreum. *Donn Hort. Cant. ed. 7. 237.*

FIRST observed by the late Mr. John Mackay on Breeze Hill, Isle of Skye, in 1794. Sir James Edward Smith has noticed it in *English Flora* as a variety of *A. dioica;* but after many years observation, and an attentive comparison of it, cultivated together with *A. dioica* and *plantaginea*, I am now fully satisfied of its being entitled to rank as a species. It approaches much nearer to *A. plantaginea* than to *A. dioica;* but it is essentially distinguished from both by its uniform, spathulate leaves, densely clothed on both sides with permanent down. Plant forming a dense, flat patch. Shoots leafy, half an inch or an inch long. Stems upright, simple, filiform, leafy, very downy, from 2 to 4 inches high, bearing 3 or 5 flowers. Leaves scarcely an inch long, spathulate, blunt, flat, coriaceous, thickly clothed on both sides with a permanent, short, woolly, white down; those of the stem narrow, strap-shaped, blunt, erect, sometimes adpressed, downy and white on both sides, about half an inch long.

Involucrum of the female flowers oblong, cylindrical, imbricate, with strap-shaped, blunt, scariose, silvery, shining scales, generally tinged with pink. Receptacle naked and dotted. Female florets slender, filiform, lower half greenish white, swollen a little above the base, gradually contracted upwards, and of a red colour; the limb small, oblique, and furnished with 5 linear, unequal, blunt teeth. Stigmas semicylindrical, blunt, smooth. Achenia linear, compressed, smooth. Pappus white, composed of many slender, capillary, minutely toothed rays. The male flowers I have not seen.—D. Don.

HIEROCHLOE borealis.

Northern Holy Grass.

TRIANDRIA Digynia.

GEN. CHAR. *Glumes* 2, nearly equal. *Florets* 3, the terminal one hermaphrodite and diandrous; the 2 lateral ones male and triandrous. *Perianth* of 2 valves, the outermost cartilagineous, mostly furnished with a dorsal awn. *Ovarium* free. *Stigmas* brush-shaped.

SPEC. CHAR. Panicle erect, somewhat racemose. Peduncles smooth. Spikelets ovate, outer valve fringed, rough, and awnless. Scale deeply cloven. Leaves flat.

SYN. Hierochloe borealis. *Rœm. et Schult. Syst. Veg. v.* 2. 513. *Hook. Scot.* 28. *Smith Engl. Fl. v.* 1. 110. *Spreng. Syst. Veg. v.* 1. 274.

Holcus odoratus. *Linn. Fl. Suec.* 363. *Willd. Fl. Berol.* 48. *Wahl. Fl. Lapp.* 31. *Fl. Dan. t.* 963.

H. borealis. *Schrad. Fl. Germ. v.* 1. 252.

H. repens. *Host Gram. v.* 3. *t.* 3.

Poa n. 53. *Linn. Fl. Lapp.* 29. *ed.* 2. 30.

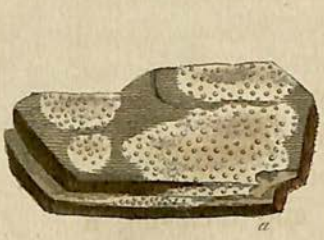
Gramen Mariæ Borussorum. *Læs. Pruss.* 111. *t.* 26.

THIS interesting addition to the British Flora was discovered in 1812 by the late Mr. George Don, in a narrow valley, called Glen Kella, among the Grampians of Forfarshire.

Root perennial, creeping. Stems about a foot high, perfectly straight and round, smooth, and marked with broadish lines, attenuated towards the top; the upper half destitute of leaves. Leaves rather broad, flat, smooth on both sides,

of a bright green, paler above, shining underneath, furnished with many straight parallel ribs; the margins rough with minute teeth; radical ones linear, attenuated, ending in a blunt, callous point, from 4 to 6 inches long, when dried involute; those of the stem lanceolate, scarcely an inch long. Sheaths from 2 to 6 inches long, smooth, and marked with numerous prominent ribs; the margins overlapping each other; inner one white and scariose. Stipules broad, obtuse, embracing the stem, occasionally slightly torn at the edges, about a line and a half long, very thin and scariose. Panicle erect, thin, somewhat racemose, surrounded at the base by the truncate, callous rudiment of the bractea. Rachis jointed, smooth; the joints furnished with a prominent ring. Primary branches forked, mostly 2 issuing from the same joint. Peduncles smooth, simple, or forked, thickened at the extremity. Spikelets solitary, ovate, of a greenish yellow, or pale chesnut, stained with purple. Florets 3, in each spikelet, inserted alternately on a very short, smooth, flexuose axis; the intermediate one hermaphrodite and diandrous; the 2 lateral ones male and triandrous. Glumes 2, nearly equal, broad, ovate, acuminate, membranous, smooth and glossy, rather longer than the florets. Perianth of 2 unequal valves; outer one cartilaginous, of the same form as the glumes, but shorter, rough on the back, destitute of an awn, and fringed at the margin; the inner one very thin, white and scariose, twice narrower, lanceolate, bifid with pointed segments, concave above. Hypogynous scale deeply cloven, with linear, pointed segments. Filaments very slender, capillary, white. Anthers yellow, linear, attached by the middle, versatile: cells parallel, bursting longitudinally, free at both extremities. Ovarium fusiform, smooth, attenuated into the style, which is scarcely half the length. Stigmas 2, large, brush-shaped, thickly bearded with papillary hairs. Several authors state the florets to be furnished with a short awn, but I have not been able to detect even the rudiment of one in the specimens which I have examined. The genus is evidently intimately allied to *Deschampsia*, *Aira* and *Anthoxanthum*, but abundantly distinct from either.

In the same excursion the late Mr. Don collected specimens and plants of what he took to be a new species of *Melica*, allied to *M. cærulea*, which he called *M. alpina*. A careful examination however proves it to be nothing more than a barren variety of *M. cærulea*, with the glumes enlarged and foliaceous, almost approaching to a viviparous state. Mr. Lindley has also regarded it as a species, and named it *Molinia depauperata*.—D. Don.



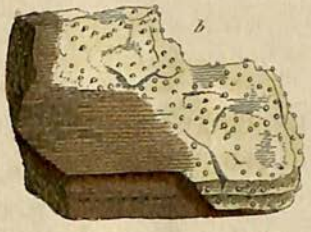
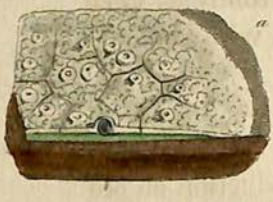


Fig. 2.



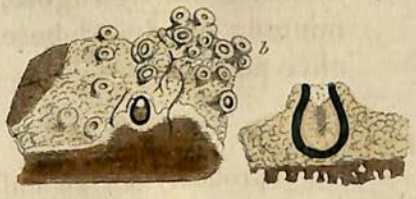


Fig. 1

Verrucaria aphanes Fig. 1.

_____ leucocephala Fig. 2.

May 1st 1830

2642. (Fig. 1.)

VERRUCARIA aphanes.

Inconspicuous Verrucaria.

CRYPTOGAMIA Lichenes.

GEN. CHAR. *Tubercles* of a different substance from the thallus, simple, convex, not expanding, but furnished with a central pore, and inclosing a somewhat gelatinous nucleus.

SPEC. CHAR. Crust indeterminate, very thin, continuous, minutely rugose, olive. Tubercles very minute, nearly globose, covered with a pale olive powder.

THIS is probably not an unfrequent production on old elms, but being visible to the naked eye only by a dull dark olive tinge, it may well be passed over as the naked surface of the bark. Our specimens grew at Henfield, Sussex, and near Yarmouth.

The crust is found, when examined with a magnifier, to be a film as thin as possible, spreading indeterminately, very minutely wrinkled, unpolished, continuous, frequently disappearing in spots: its colour a brownish olive when dry, and becoming greener upon the application of moisture. Tubercles most minute, numerous, yet dispersed rather distantly over the crust, and very rarely any of them crowded together; they are either more or less deeply sunk, or variously prominent, sometimes so much so as to show a contraction at the base; their surface is regularly convex, either apparently naked and of an unpolished black with a tinge of brown, or, much more commonly, covered, as if powdered, with a pruina, which is of a paler tinge than the crust, occasionally greyish and approaching to white. This does not however, in general, conceal the orifice, which appears a little round black or brownish dot, occasionally, but not frequently, dilated into an irregular

opening. Little black specks are found here and there on the crust, which seem to be the bases of broken tubercles.

The powdery surface of its tubercles seems to indicate some degree of affinity between this most inconspicuous little Lichen and *V. leucocephala;* and the state of our knowledge of these obscure vegetables is by no means such as to warrant a positive assertion that it is not an infant state of that species, only in company with which we have hitherto found it growing. Yet the structure of the crust seems very different, as well as the colour both of that part and of the fructification. The tubercles are much more minute than those of any other *Verrucaria* with which we are acquainted, being of scarcely half the size of those of the American species which Acharius has named *V. pusilla*, in which they are, indeed, about as large as in *V. rhyponta*, *t. 2597. f. 2.* We are not acquainted with *V. byssacea* var. *minutissima* of Acharius, (*Syn. Lich. p. 97.*) but it can bear no near resemblance to our *V. aphanes*.—W.B.

2642. (Fig. 2.)

VERRUCARIA leucocephala.

White-fruited Verrucaria.

CRYPTOGAMIA Lichenes.

GEN. CHAR. *Tubercles* of a different substance from the thallus, simple, convex, not expanding, but furnished with a central pore, and inclosing a somewhat gelatinous nucleus.

SPEC. CHAR. Crust between filmy and tartareous, grey, pruinose. Tubercles largish, prominent, spherical or almost cylindrical, brown, covered with white powder; their apex at length bare.

SYN. Verrucaria leucocephala. *Ach. Meth.* 116. *Lich. Univ.* 286.

Pyrenula leucocephala. *Ach. Syn.* 126.

Cyphelium leucocephalum. *Ach. in Stockh. Trans. for* 1817, 226. "*t.* 8. *f.* 7."

Sphæria lichenoides. *Sowerby Fungi, t.* 373. *f.* 12.

β. amphibola. *Ach. Syn. l. c.*

Lichen amphibolus. *Ach. Prod.* 20.

THIS species, which is, according to Acharius, the *Sphæria leucocephala* of Ehrhart and of Persoon, grows near the ground, on the trunks of old trees. The presence of the genuine thallus of a Lichen claims for it a place in this *Order*; and its tubercles are similar to those of the other *Verrucariæ* in internal structure, although they recede much in outward appearance, by their soft fungus-like look and powdery surface.

The crust spreads widely and irregularly. Young patches are usually roundish, and have sometimes a fibrous and

slightly zonate edge. The surface is unpolished, sometimes continuous, sometimes full of narrow cracks: when wet it is grey, variously tinged with green; when dry usually almost white and looking as if powdered; under some circumstances nearly bare, and of a dark olive grey. The internal substance is green. The tubercles, when young, are often so completely covered with loose white powder, as to resemble the pulvinuli of a *Spiloma*. When fully formed, they are usually contracted at the base, spherical, ovate, or even elongated like the papillulæ of an *Isidium*. The shell is brown under the pruinose film, which invests it, in general, even in the advanced state of the tubercle, except at the very apex. Occasionally it is bare, and then of a blacker hue. The *Lichen calliculosus* of Hoffmann, *Enum. p.* 17. *t.* 2. *f.* 2, which Acharius quotes as a synonym, is figured and described with somewhat hairy tubercles.

Our β (*fig.* b.) is, in itself, a slight variety, with larger, clustered, often irregular tubercles: but we have specimens on old bark from Mr. Lyell and from Mr. Robertson, on which, among the tubercles, as they appear to us, of *V. leucocephala*, are found patellulæ of a dull purplish black, covered with an inseparable superficial buff powder. See our *fig.* c. Such specimens, perhaps, suggested to Acharius the trivial name *amphibolus*, and induced him, subsequently to the publication of his *Synopsis*, to transfer the species to his new genus *Cyphelium**, where it surely finds, however, very unmeet associates in the sessile-fruited *Calicia*, from which the genus was originally constructed. Precisely similar patellulæ occur on sand-rocks in Sussex, intermixed with what may possibly be abortive tubercles of the *Verrucaria*. Whilst we know no other Lichen to which these patellulæ can be referred, we believe, but cannot positively affirm, that they do not belong to our *Verrucaria*. How incessantly do the lectures of Nature admonish her students to humility! How imperfectly can we trace even the lowest operation of the Almighty hand!—W.B.

* I have not access at present to the figures in the *Stockholm Transactions*.

June 1st 1830.

JUNCUS nigritellus.

Black-headed Jointed Rush.

HEXANDRIA Monogynia.

GEN. CHAR. *Perianth* 6-leaved, glumaceous. *Stigmas* 3. *Capsule* 3-celled, 3-valved, many-seeded.

SPEC. CHAR. Leaves jointed, awl-shaped, cylindrical. Heads few, many-flowered. Capsule longer than the lanceolate, pointed perianth.

SYN. Juncus polycephalus. *Don in Hook. Fl. Scot.* 109. *Smith Engl. Fl. v.* 2. 177. *but not of Michaux.*

A NATIVE of marshy spots on the mountains of Clova, Angusshire, where it was discovered many years ago by the late Mr. George Don. Not aware that there was already a species named *polycephalus* in Michaux's *Flora Boreali-Americana*, I described the present under that name in the *Flora Scotica* of Dr. Hooker. My account of it in that work being rather meagre may have induced M. Laharpe, in his recent monograph of the genus, to refer it to *J. ustulatus* of Hoppe; but I trust that the detailed description now given, accompanied by the accurate representation by Mr. Sowerby, will remove all doubt respecting the distinctions of these two plants.

Root perennial, creeping, thick, woody and knotty, throwing out many long, thread-shaped fibres, of a pale brown colour. Stems many, filiform, jointed, leafy, upright, quite smooth, from 4 to 10 inches in height: joints distant, slightly swollen. Leaves from an inch and a half to 4 inches long, awl-shaped, cylindrical, smooth and shining, minutely striated, scarcely pointed, knotty with numerous, internal partitions; the base for about half way up the joint forming a sheath, broad and channelled, with the margins free and membranous, enveloping the stem. Heads

few, many-flowered, from 3 to 4 lines in diameter, about from 3 to 5 in a trichotomous panicle, or wholly sessile and spiked; sometimes solitary. Bracteæ solitary to each head, either lanceolate, acuminate, and wholly membranous, shorter than the flowers, or longer, terminated in an awl-shaped, leafy appendage. Flowers 8 or 10 in a head, each furnished at the base with an ovate-lanceolate, acuminate, chaffy scale. Perianth composed of 6 lanceolate acute leaves, of a tawny colour; the 3 innermost rather longer and broader, and furnished with a white scariose margin. Capsule linear-oblong, triquetrous, exceeding the perianth in length, black and glossy, terminated by the short, persistent, truncate style.

This species differs from *Juncus lampocarpus* in its cylindrical, not compressed leaves; in its few, many-flowered heads, and in its longer and narrower capsule. The beak of the capsule is much shorter, and the leaves of the perianth acute, not acuminate, as in *J. acutiflorus*. In *J. ustulatus* of Hoppe, which Sprengel regards as the same with *fusco-ater* of Schreber, the panicle is composed of many heads; the leaves of the perianth are very blunt, almost rounded at the apex, and the capsule shorter, blunter, and of a chesnut colour. The specimen of this in the Smithian herbarium was received from the late Dr. Panzer, and is from Salzburg. In Davall's herbarium there is a Swiss specimen collected by Favrod, and marked with a query *J. stygius*, which may possibly prove to be identical with our plant.

On examining the specimen from Dickson in the Smithian herbarium of what my late distinguished friend took for *J. gracilis*, *t.* 2174, in a young state, it proves to be only a miserable specimen of *J. compressus*, to which I fear the figure of Gesner must be also referred. A comparison of specimens appears to confirm the opinion of Dr. Hooker as to its identity with *Juncus tenuis* of Pursh.—D. Don.

2644.

511*

JUNCUS capitatus.

Dense-headed Rush.

HEXANDRIA Monogynia.

GEN. CHAR. *Perianth* 6-leaved, glumaceous. *Stigmas* 3. *Capsule* 3-celled, 3-valved, many-seeded.

SPEC. CHAR. Stem erect, unbranched, leafy at the base. Leaves bristle-shaped, channelled. Heads one or two, lateral and terminal. Stamens 3. Perianth twice as long as the truncated capsule, the outer leaves keeled, bristle-pointed.

SYN. Juncus capitatus. *Weigel Obs.* 28. *t.* 2. *f.* 5. *Ehrh. Calam.* 8. *Willd. Sp. Pl. v.* 2. 209. syn. very doubtful. *Lind. Syn. Brit.* 275.
J. gracilis. *Roth Germ. v.* 1. 155. *v.* 2. *p.* 1. 402.
J. foliatus minimus. *Bauh. Hist. v.* 2. 523. *f.*
Schœnus minimus. *Forster in Sym. Syn.* 197.

THIS humble Rush appears to have been but little known to British botanists, before Sir J. E. Smith described it and settled the synonyms in his *English Flora.*

The *Juncus capitatus* is admitted as a British plant upon the authority of Mr. Hudson, who gathered it below the village of Bovet, between Fort George and Fernain Bay, in the Isle of Jersey. The specimens which have served for the description and figure before us, were in the herbarium of the late Dr. Gray, who brought them from Portugal. There can be no doubt of their being the plant referred to by the author of the *English Flora,* since they agree precisely with the specimens in his herbarium; and as there is not much chance of obtaining fresh indigenous ones, it is thought advisable to use these.

The plant grows either solitary or crowded. Root simply fibrous, apparently annual. Stems many, upright, smooth, angular when dry, from 2 to 4 inches high, terminated by a leaf-like bractea, and a nearly globose head of flowers: in many instances a second head is raised above the bractea, and, rarely, two such heads are produced. Upon one or two stems in our specimens there is half way up a membranous

scale. Leaves linear, concave, smooth, terminating in a sharp transparent point; about 3 at the base of each stem, their lower parts membranous, sheathing, the inner ones nearly half as long as the stem. Bracteas of two kinds, one, leaf-like, mostly solitary, dilated and concave at the base, placed close to the insertion of the single, or when there are several, of the sessile head of flowers; the other kind, or lesser membranous bracteas, ovate-lanceolate, bristle-pointed, one to each flower, which some of them equal in length. Flowers generally from 5 to 10 in each head. Perianth consisting of 3 ovate-lanceolate, concave, strongly keeled, membranous leaves, the keel produced into a firm, slightly reflected bristle, and of 3 inner and smaller leaves, which are ovate-lanceolate, membranous, flat, and slender pointed. Stamens 3 only, opposed to the outer leaves of the perianth, and nearly half its length. Style half as long as the capsule. Stigmas 3. Capsule shorter than the stamens, blunt, triangular, above hard, brown and glossy, beneath soft and speckled; each valve externally concave at the base. Seeds oblong, striated and pointed, minute.

The sharp bristle-pointed perianth, and short blunt capsule, are sufficient marks by which this species may be distinguished at first sight from any other that might, by being accidentally deprived of proper nourishment, assume a somewhat similar habit: but the most remarkable character, and that upon which Sir J. E. Smith lays great stress, is the presence of only 3 stamens in each flower. If this circumstance be constant, we know not what the *J. mutabilis* of Cavanilles is: his figure is very like our plant, and Dr. Gray labelled his specimens with that name. The *J. supinus* described by Mr. Bicheno in *Linn. Trans.* vol. 12. p. 317. is evidently the plant so named by the late Mr. Don, which has leaves upon the stem, and soft points to the perianth: we have therefore omitted that synonym, although given in the *English Flora*, where *J. supinus* is referred to *J. uliginosus*. Dr. Hooker in his *Flora Scotica*, *p.* 106, has also referred to Don's plant as *J. capitatus*; we therefore are obliged to omit the reference to his description. There appears to be no authority for *J. capitatus* growing in Scotland, nor indeed is it likely to be found so far north.

J. D. C. S.

CROCUS præcox.

Small annular-rooted Crocus.

TRIANDRIA Monogynia.

GEN. CHAR. *Cor.* in 6 divisions, regular. *Stigmas* convoluted.

SPEC. CHAR. Segments of the flower of equal length, with root-coats dividing at the base into neatly rounded narrow symmetrical rings.

SYN. Crocus argenteus. *Tab. in Hort. Soc. Lond. Trans. v. 7. 431.*—and argenteus præcox, *t. 11, 12. fig. 5.*—and 438 inedit.

C. reticulatus. *Smith Eng. Fl. v. 4. 263.* with synonyms much confused.

ABOUT the middle of March 1830 (although a very backward season), living specimens in bloom of this small Crocus, along with others figured on our next Plate, were sent us by Mr. Hodson, of Bury St. Edmund's. They were found growing and even seeding plentifully together, but, as he assures us, without any other varieties or species among them, under shading oaks in Sir H. Bunbury's park, at Barton Hall, Suffolk, and in a perfect state of wild nature.

Nevertheless we humbly venture to presume they are merely the outcasts of ancient gardens, although it cannot now be traced; because it is not by any means likely that bulbous plants, known to belong to Asia Minor and the warmest parts of Europe, should also occur spontaneously in our cold and northern climate. Yet still it is proper they should be represented in our Supplement to the native plants of our British Isles, duly accompanied by the above remarks: for, as Dr. Berkenhout on a similar occasion well observed, "if they are not *ancient* Britons, they *are Britons* nevertheless:" and so, and as such only, we give them.

Sir James Smith in his *English Flora*, as above cited,

has blended this species with that on our next Plate, and both with the *Crocus reticulatus* of Marsh (*Fl. Taur. Caucasic. v.* 1. *p.* 28); which itself is only a very slight variety of still another species, as the reader will learn in the account of our next Plate, to which we refer him.

Our present subject much resembles *Crocus biflorus* of Miller, and of Ker in the *Botanical Magazine*, *t.* 845; but is scarcely half the size of that plant, and has not its *jaggedly divided* root-coats. The above-mentioned figure of the *Magazine* portrays a plant kept dry out of the ground too long, and perhaps planted too shallow, whence the leaves, which I constantly perceive are higher than the flowers in every stage of growth, were unnaturally shortened. Its root-coats also are badly represented.

Crocus pusillus of Tenore, and of Sweet in his *Hardy Flower Garden*, is perhaps still nearer to our plant, being of similar size and colour, but differing in the shorter inner laciniæ of the flower, and probably in its root-coats; which last, however, I have not yet been able to procure and examine.—A. H. Haworth, April 21, 1830.

CROCUS aureus.

Lesser gold-coloured Crocus.

TRIANDRIA Monogynia.

GEN. CHAR. *Cor.* in 6 divisions, regular. *Stigmas* convoluted.

SPEC. CHAR. Filaments upwardly geniculate; anthers incurvedly patent, rather acute, and scarcely emarginate; root spheroid, flat beneath, with smoothish entire coats.

SYN. Crocus aureus. *Sibthorp. Fl. Græc. v.* 1. *t.* 35. where it is asked, "anne *verni*, vel *sativi* confusus?" both which are extremely distinct from it; the first having entire root-coats, and the last being autumnal.

C. reticulatus. *Smith Eng. Fl.* 4. 263. not of others; and confused with several distinct species.

C. lagenæflorus. *Salisb. Par. Lond. t.* 106.—C. lageniflorus, *α. Tr. of Hort. Soc. v.* 1. 134.

C. vernus latifolius aureus. *C. Bauh. Pin.* 66.

C. vernus luteus, Mesiacus flore aureo. *Park. Parad.* 166. & *t.* 169. *f.* 1.

C. vernus latifolius, aureo flore. *Clus. Hist. Pl. lib.* 2. 206.

C. vernus Mesiacus 1. *Clus. Pann.* 226, 227. *cum ic.*

THIS plant we have already said was found apparently wild in Suffolk, with that on our last Plate. The figure above cited in *Par. Lond.* shows a very large garden specimen in its early stage of blooming, before the nascent leaves have much emerged beyond their filmy sheaths: and that

of *Fl. Græca* represents a moderate native root in its last period of flowering; for the purpose, doubtless, of better representing the then elongated leaves.

Sir James Smith, in his *English Flora*, doubts not the British origin of this plant, and decides it to be the same as the *C. reticulatus* of *Flora Taurico-Caucasica*, which itself is merely one of the many varieties of *C. revolutus* of *Hort. Trans. v.* 1. *p.* 136. And it is the true or first *C. mesiacus* of all authors except Ker, who erroneously applies that ancient synonym to our now most common, fullest-flowering, and most showy Crocus of all, which is figured from a weak specimen under the name of *C. vernus* by Curtis, in *Bot. Mag. t.* 45, and which was not known either in books or gardens before the time of our own immortal Ray.

In the account of the varieties β and γ of this species in *Hort. Trans. v.* 1. *p.* 134, drawn up merely from three or four withering flowers without root or leaf, it was said that they "would probably prove a distinct species," and they have already proved such: so that our *Crocus aureus* remains without a single known variety; a rather rare occurrence in the genus, which is very inconstant both in the size and form, and in the very varying hues of its beautiful flowers.—A. H. H.

Since the above was written, Dr. Hooker has published this plant as *Crocus aureus*, in the *Botanical Magazine*, *t.* 2986: hence we have several concurring opinions regarding the name.—J. D. C. S.

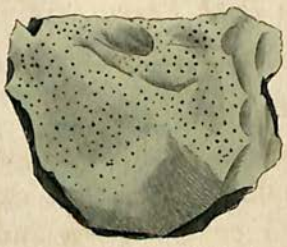
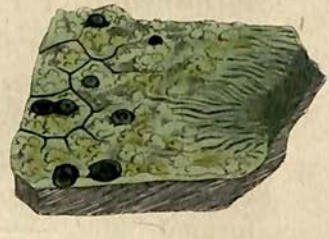
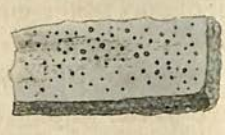


Fig.1.





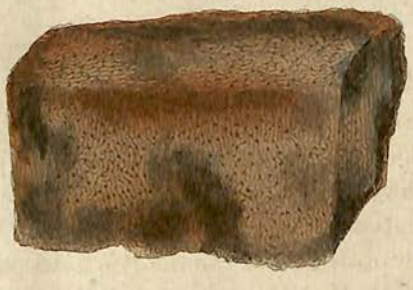
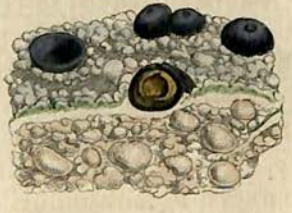


Fig.2.



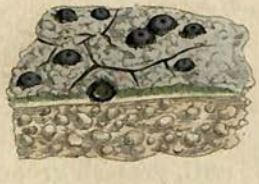
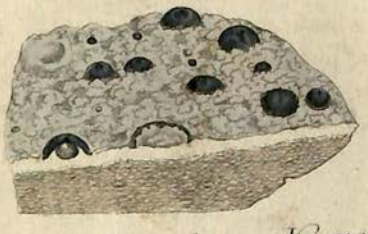
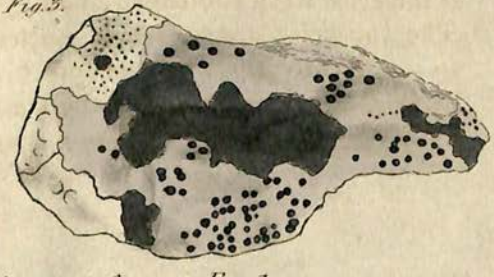


Fig.3.





Verrucaria trachona. Fig.1.
_____ muralis. Fig.2.
_____ epipolaea. Fig.3.

June 1st 1830.

2647. (Fig. 1.)

VERRUCARIA trachona.

Green Rock Verrucaria.

CRYPTOGAMIA Lichenes.

GEN. CHAR. *Tubercles* of a different substance from the thallus, simple, convex, not expanding, but furnished with a central pore, and inclosing a somewhat gelatinous nucleus.

SPEC. CHAR. Crust indeterminate, thin, between pulveraceous and tartareous, continuous or slightly cracked, greyish green. Tubercles small, prominent, nearly globose, pruinose; at length deformed.

SYN. Verrucaria trachona. *Ach. Meth. Suppl.* 16. *Lich. Univ.* 286. *Syn.* 96.

GATHERED by the late Miss Hutchins and the late Sir T. Gage on slaty rocks in different parts of Ireland. It has not been recorded as a native of any other country, Sweden only excepted. Indeed the specimen communicated to the Linnean Society by Acharius is somewhat doubtful: yet the descriptions in his works agree so well with the plant before us, that we venture to regard it as his *V. trachona.*

The very thin crust, formed of confluent minute powder-like granulations, spreads irregularly in patches an inch or more in width. It appears a little rugged under a glass, and is often slightly cracked when dry. Its hue is a pale, usually dull, greyish green, scarcely changed by moistening. The edge is grey, and of a dendritic or fibrous texture, as if the crust were subtended by an extremely thin filmy base. The tubercles are copiously scattered all over the crust, so small as to appear mere dots to the naked eye, imperfectly globose, raised above the thallus, but generally partially clothed about their base and sides, and sometimes all

over, with particles from the crust. They are brownish and of a pruinose appearance when dry, black when wet. Their orifice is a minute dot at first, and gradually enlarges so as to become an irregular concave opening, often so wide as to give the old tubercles the appearance of deformed patellulæ with an imperfect disk and a thickish distorted margin. Their interior is greyish.

The general aspect of this Lichen is so much like that of *Lichen viridis* of Schreber, *Lepraria botryoides* of *English Botany* (not of Acharius), that it might easily be mistaken for that plant, somewhat faded, and sprinkled with a minute parasite. Under a glass, however, the crust is found to be thinner and more coherent than that formed by the propagula of the *Lepraria*, and the tubercles seem really to belong to it. In an old state they resemble, as before observed, deformed patellulæ, and even more strikingly the young and as yet sessile capitula of some of the *Calicia*. Still they appear to be in reality the tubercles of a *Verrucaria*. Acharius has observed of those of his *V. trachona*, that they in some states so resemble those of *V. leucocephala* as to induce a doubt whether the two species were distinct. In ours there is occasionally some resemblance, but we cannot entertain any such doubt. Of our other species of this genus, only *V. epigea* (*Lichen terrestris* of *English Botany*) and *V. elæina* bear even a general resemblance to *V. trachona;* and a slight examination is sufficient to prove these very different both in crust and in fructification.—W. B.

2647. (Fig. 2.)

VERRUCARIA muralis.

Wall Verrucaria.

CRYPTOGAMIA Lichenes.

GEN. CHAR. *Tubercles* of a different substance from the thallus, simple, convex, not expanding, but furnished with a central pore, and inclosing a somewhat gelatinous nucleus.

SPEC. CHAR. Crust indeterminate, composed of thin scattered or confluent scales, between pulveraceous and tartareous, pale grey. Tubercles prominent, nearly globose, unpolished, umbilicate.

SYN. Verrucaria muralis. *Ach. Meth.* 115. *Lich. Univ.* 288. *Syn.* 95.

V. ruderum. *DeCand. Fl. Fr. ed.* 2. *v.* 2. 318.

Sphæria communis. *Sowerby Engl. Fungi, t.* 295. upper figure.

VERY common on walls, growing chiefly, but not exclusively, on the mortar. The place of growth, and the descriptions of Acharius and of DeCandolle, appear to justify the references made above to the works of those authors; yet it is almost needless to observe, that a crustaceous *Verrucaria*, especially one of the more obscure species, can hardly be determined with certainty from a mere description, however excellent. Acharius originally regarded his plant as the true *Lichen calcarius* of Linnæus; an error which he corrected in his *Methodus*.

Crust often scarcely perceptible; composed of minute whitish scales, or flocculi, of an imperfect powdery look, either scattered irregularly and separate, or approaching each other and confluent here and there into more compact and imperfectly areolate patches, the surface of which oc-

casionally assumes a brownish tinge: internal substance green. Tubercles numerous, scarcely so large as poppy-seed, sometimes clustered and confluent and much deformed, which indeed they often are when growing single, although then more generally of a tolerably regular orbicular figure. When the crust is most perfect they are partially immersed; in other cases variable in prominency; most protuberant when wet, and in that state black; when dry brownish or slightly pruinose: their surface minutely wrinkled all over: their central part usually more elevated than the circumference, now and then slightly papillose, but more frequently rather conspicuously dimpled, and at maturity pierced with a small pore. Nucleus brownish, shrinking much when dry. Old tubercles are often found irregularly broken, and in falling they leave a shallow cavity in the mortar, or the base of the shell sometimes remains in the form of a small black cup.

V. muralis is nearly allied to *V. rupestris;* but its crust is less continuous, and its tubercles less deeply immersed and less regular in figure, as well as larger than in the usual appearance of that Lichen. To a *Verrucaria* which is probably the *V. Dufourii* of *Flore Française*, and to *V. viridula*, it bears also considerable affinity; but it appears distinguishable from the former by its larger and more prominent tubercles, and from both by its inconsiderable crust. The crust of *V. viridula*, indeed, has sometimes, when injured by insects, a very similar appearance; but the proper state of its surface is almost always to be traced in some parts of the patch. The tubercles too of that plant are larger and more conical. Still the most experienced Lichenists will not, perhaps, be the most forward to decide whether these two productions be truly distinct species. Acharius, on the authority of a specimen from M. Dufour, has described *V. concentrica* of *Flore Française* as a variety of *V. muralis*, differing only in being almost entirely without a crust and in the concentric disposition of the tubercles.—W. B.

2647. (Fig. 3.)

VERRUCARIA epipolæa.

Large-fruited Rock Verrucaria.

CRYPTOGAMIA Lichenes.

GEN. CHAR. *Tubercles* of a different substance from the thallus, simple, convex, not expanding, but furnished with a central pore, and inclosing a somewhat gelatinous nucleus.

SPEC. CHAR. Crust indeterminate, thin, tartareous, somewhat powdery, greyish. Tubercles large, prominent, mostly conical, brownish black, pruinose.

SYN. Verrucaria epipolæa. *Ach. Lich. Univ.* 285. *Syn.* 95. *Fing. Tent. Lich. Eiffl.* 15.

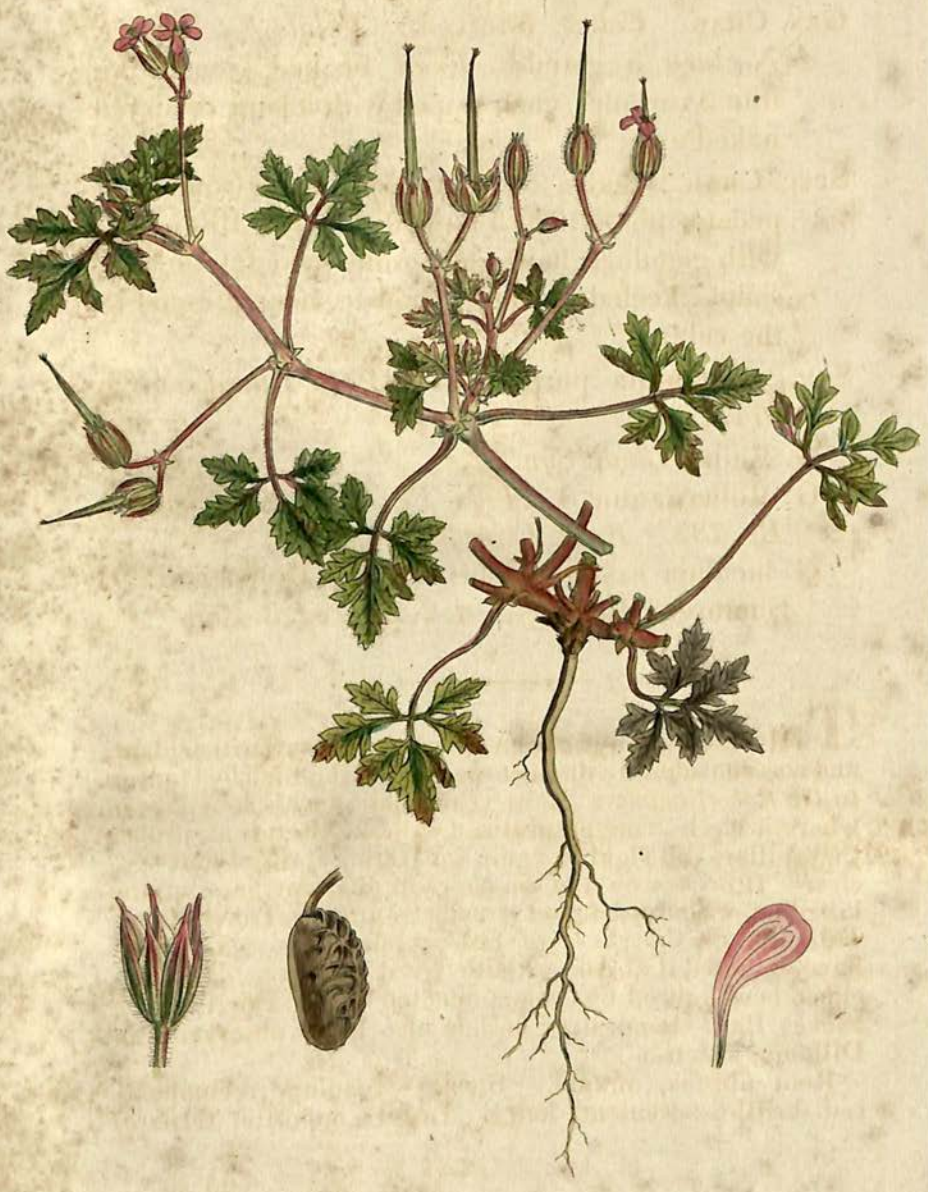
FROM St. Vincent's Rocks. Several botanists now deceased have also gathered this species: the Rev. Hugh Davies in Wales, Mr. Brunton and the Rev. J. Harriman in the North of England, and Sir Thomas Gage in Ireland. Our specimens agree with an authentic one from Acharius.

Crust spreading irregularly and indeterminately, very thin, yet somewhat tartareous, green within, externally greyish, but always tinged more or less with red, and sometimes almost rose-coloured, unpolished, with a rather powdery appearance, continuous, or cracked in some parts when dry into minute areolæ. Tubercles rather remotely scattered, of a size sometimes exceeding that of cabbage-seed, minutely rugged, occasionally polished at the apex, but usually all over of a dull black, with a tinge of brown, and a little pruinose: they are for the most part regularly orbicular and considerably prominent, rising from a flat slightly immersed base into a conical or sometimes hemispherical figure, now and then slightly mammillated. Frequently the orifice is scarcely discoverable, even in full-

grown tubercles; but not less frequently the apex is marked in a much earlier stage with a minute dot, sometimes whitish as if the nucleus were partially visible, and occasionally the surrounding part is either flattened or slightly dimpled, but this is rarely the case; in general the orifice expands at length more widely, and often irregularly, giving the tubercle a broken appearance. Nucleus white, shrinking in various degrees in drying. When a tubercle falls off, the base of the shell, which does not pass under the nucleus, (and perhaps the lower part of the nucleus itself,) often remains, forming a white disk with a black margin; and sometimes the crust rises about the fragment of a tubercle, and gives it a resemblance to the fructification of a *Thelotrema*. Where the whole tubercle has fallen out, a shallow white impression is left in the crust.

The great similarity of this species to *V. gemmata*, *t.* 2617*, has already been noticed in the account of that Lichen. Its large tubercles and continuous crust distinguish *V. epipolœa* from *V. muralis*; and it will scarcely be confounded with any other known British Lichen, except perhaps the largest state of *V. rupestris*, a species which has the base of the tubercle immersed not merely in the crust but in the stone beneath, and its shell continued, in some stages at least, under the nucleus. *V. pyrenophora* of Acharius, judging from a single specimen, differs but slightly from *V. epipolœa*. Its tubercles are truncate, or concave at the apex, with the margin of the hollow acute and regularly circular; but a distant approach to such a conformation is occasionally observable in *V. epipolœa*.—W. B.

* Fingerhuth, in his recent *Tentamen Florulæ Lichenum Eiffliacæ*, gives *V. alba* of Persoon as a "sufficiently distinct species" from *V. gemmata*.



July 1st 1830

GERANIUM purpureum.

Sea Crane's-bill.

MONADELPHIA Decandria.

GEN. CHAR. *Calyx* 5-leaved. *Petals* 5, regular. *Nectary* 5 glands. *Fruit* beaked, separating into 5 capsules, each tipped with a long recurved naked awn.

SPEC. CHAR. Stalks 2-flowered. Leaves somewhat pedate, pinnatifid, 5-angled. Calyx 10-angled, with glandular hairs. Capsules naked, wrinkled, simply keeled. Petals obovate, nearly equal to the calyx.

SYN. Geranium purpureum. *Vill. Dauph. v. 3. 374. t. 40.*

G. Raii. *Lindl. Syn. 57.*

G. Robertianum β. *Huds. Fl. Angl. 305. Sm. Fl. Br. 732. Engl. Fl. v. 3. 236.*

G. lucidum saxatile, foliis Geranii Robertiani D. Sherard. *Raii Syn. ed. 2. 218. ed. 3. 358.*

THIS Geranium has been long known as a British plant, and was considered a distinct species, until united by Hudson to *G. Robertianum*. Many years' observation in a garden where it has become naturalized without alteration, proves that Villars did right in again separating it from that species. It occurs on the sea-shore in different parts of the kingdom. Sherard found it near Swanning, Dorsetshire; Dillenius on the shore of Selsey Island, Sussex; and I have gathered it at Aberystwith, Cardiganshire. The specimen here figured was communicated by Mr. Borrer, from Stokes Bay, Hampshire; he has also lately observed it in Dillenius's station.

Root fibrous, annual. Stems spreading, recumbent, red, brittle, succulent, hairy. Leaves opposite, ternate,

cut in a pedate manner, their outline unequally 5-angled, fleshy, shining, hairy. Stalks lateral and terminal, each bearing two small purplish red flowers. Calyx 10-angled, swollen, covered with short glandular hairs. Mr. J. DeC. Sowerby observes that two of the sepals are 3-ribbed, one 2-ribbed, and two have one rib each, forming the ten angles. Petals obovate, of the size of *Geranium lucidum*, rather less than the calyx, the lamina always shorter, purplish red, veins three, indistinctly whitish. Stamens awl-shaped, smooth. Capsules obovate, naked, simply keeled, strongly wrinkled. It may be easily distinguished from *G. Robertianum*, by the smallness of every part except the fruit and calyx, by the more shining and more fleshy leaves, the glandular hairs on the calyx, the naked but more strongly wrinkled capsules, and by the shape, colour, and proportionate size of the petals. In that species the hairs on the calyx are scattered, long, and without glands; the capsules downy; the petals nearly obcordate, always considerably larger than the calyx; the colour much paler and the veins more evidently white.

It is difficult to account for the calyx being described by Villars as having cross ridges like *G. lucidum*, as they do not appear to have been seen by any other botanist. It should be remarked that he has not figured them, and that his words are "Le calice a quelquefois des rides transversales sensibles, outre ses cotes transversales," authorising a suspicion that it was some accidental appearance which this author observed. The transverse wrinkles on the upper part of the capsule described by Willdenow as three, do not appear confined to that number. The leaves of both species are in shape precisely similar.

The specific character of *G. Robertianum*, *t.* 1486, may be thus altered :—

Stalks 2-flowered. Leaves somewhat pedate, pinnatifid, 5-angled. Calyx 10-angled, with long hairs. Capsules downy, wrinkled, simply keeled. Petals somewhat obcordate, longer than the calyx.—E. Forster.

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July 1st 1830.

OPHRYS fucifera.

Drone Orchis.

GYNANDRIA Monandria.

GEN. CHAR. *Calyx* spreading. *Nectary* without a spur, convex.

SPEC. CHAR. Lip longer than the calyx, obovate, hairy. Petals minutely rough, expanded at the base. Column with a blunt, short, incurved point.

SYN. Ophrys fucifera. *Sm. Engl. Fl. v. 4. 32. Hook. Brit. Fl. 375. Lindl. Syn. Brit. 262. Smith. Pl. of S. Kent, 53. t. 4. 5.*

Orchis fucum referens, Burser. *Rudb. Elys. v. 2. 205. f. 25. (Lip with a gland at the base.)*

WE fear that the plant before us must be considered for the present an indeterminate species. The principal character, the roughness of the petals, is not invariably distinctive; nor is the margin of the lip seldom lobed. A more or less prominent, but never considerable, gland, is frequently observable within the sinus at the extremity of the lip: this gland at least is not recorded as occurring in *O. aranifera*, from which our plant materially differs in its period of flowering. The specimens from which our drawing is taken were collected at Hartlep, Kent, early in May. The earliest period observed was about the 20th of April, 1828. The plant may be detected occasionally among short grass, upon the southern slopes of the chalk downs in Kent.

Root-leaves broad, short, and expanded. Height and number of flowers variable. Central calyx-leaf abrupt or rounded, equal to or shorter than the lip. Petals minutely rough, rarely glabrous, linear or hastate, jagged or

entire at the edge, truncated, or rounded and taper at the extremity, of a more deep green colour than the calyx, and often stained above with brownish purple. Lip convex, spreading, and in *the majority* of specimens undivided at the margin, which is however not rarely 4-lobed. Gland in the sinus of the lip observable in both varieties. Colour of the lip at first intense brown, becoming pale and unequal as the flowering advances. Disk livid, blueish or brown upon a green or straw-coloured ground, often marked by an oblong, downy spot. Column directed forwards, short; its point blunt, inflexed.

Local observation alone will determine the synonyms belonging to this plant. We quote that of *English Flora*. Sir J. E. Smith, who first described the species, observes upon Rudbeck's figure that the petals are too narrow. Our figure (*a.*) taken from a living specimen may account for this apparent error; but it is probable that in the specimen examined by Rudbeck the petals were revolute in decay, or, as they are often inclined to be, folded back in the same manner as in Kentish specimens of *S. apifera*. —Rev. G. E. Smith, B.A.

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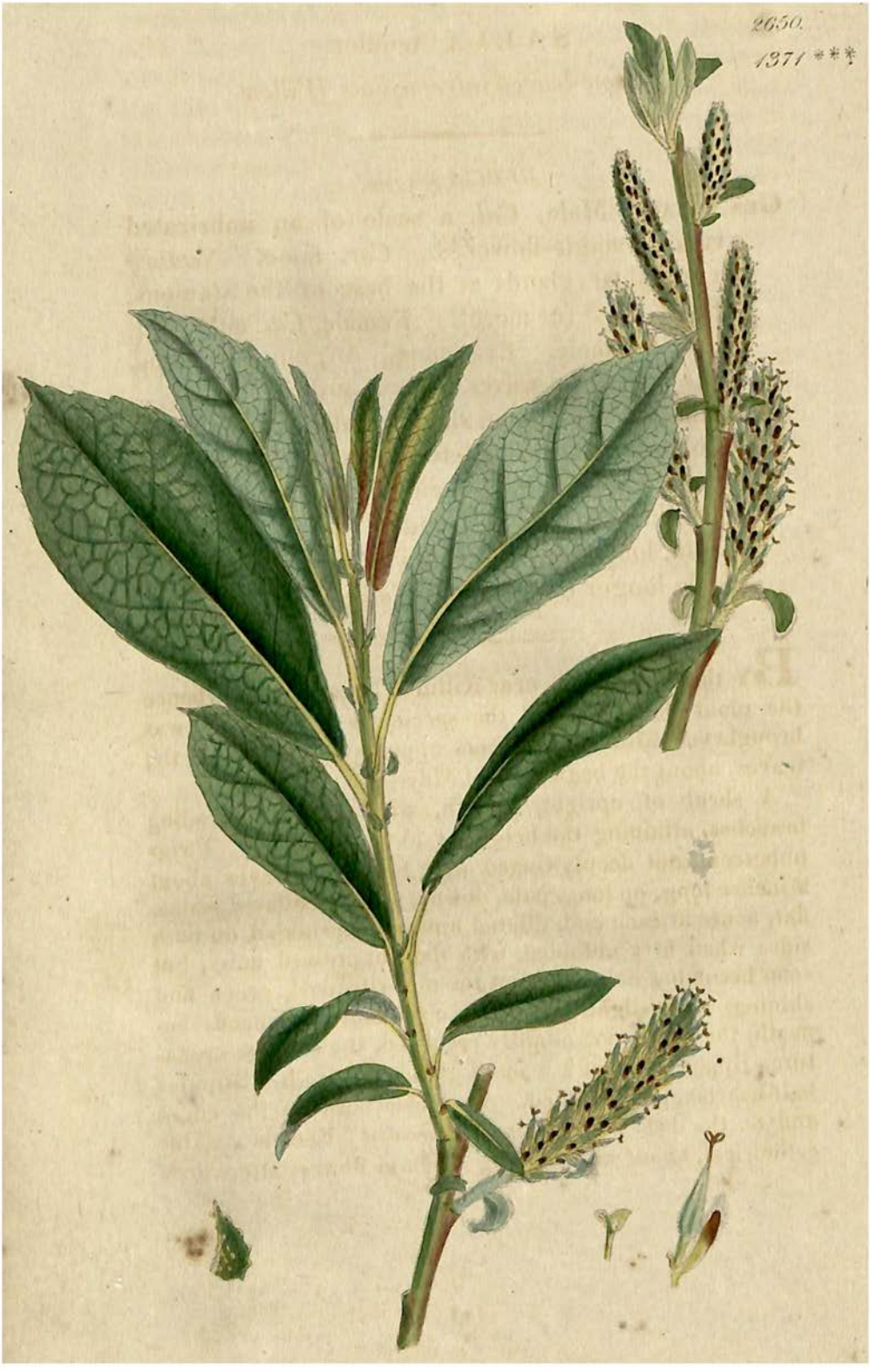

SALIX tenuior.

Narow-leaved intermediate Willow.

DIŒCIA Digynia.

GEN. CHAR. Male, *Cal.* a scale of an imbricated catkin, single-flowered. *Cor.* none. *Nectary* a gland or glands at the base of the stamens. *Stam.* 1—5 (or more). Female, *Cal.* and *Nect.* as in the male. *Cor.* none. *Stigmas* 2. *Caps.* of 1 cell and 2 valves. *Seeds* tufted.

SPEC. CHAR. Leaves on slender stalks, obovate-lanceolate, acute, obsoletely crenate, flat, naked on both sides, glaucous beneath. Stipules acute, glandulose. Catkins slender, lax. Calyx-scales acute, longer than the silky stalk of the capsule. Style longer than the ovate stigmas.

BY the river Lochy, near Killin in Breadalbane, whence the plant that produced the specimens here drawn was brought in 1810. The flowers appear with us before the leaves, about the beginning of May.

A shrub of upright growth, with loosely spreading branches, attaining the height of 15 feet or more. Twigs pubescent, not deeply tinged with brown. Leaves about 2 inches long, on long, pale, downy, scarcely dilated stalks, flat, acute at each end, dilated upwards, sprinkled on both sides when first unfolded, with short appressed hairs, but soon becoming naked except the mid-rib, dark green and shining, with slightly sunken veins above, glaucous beneath, the edges very slightly recurved, the shallow crenatures tipped each with a small glandular tooth. Stipules half-heartshaped, toothed, glandulose both on the edges and on the disk. Male plant unknown. Female catkins cylindrical, about an inch long when in flower, afterwards

attaining twice that length, on woolly stalks with a few small bluntish linear-oblong bracteal leaves, which are entire or nearly so, silky beneath. Calyx-scales oblong, rather acute, blackish brown in the upper half, with long silky hairs. Germen subulate, densely silky, on a silky stalk, about half as long as the scale, the length of which it does not equal as the fructification advances. Style smooth, longer than the thickish, downy, spreading, scarcely divided stigmas.

Sir J. E. Smith appears to have joined with *S. laurina* (*S. bicolor* of *Engl. Bot. t.* 1806.) the specimens of the present Willow which were communicated to him. It is, indeed, very nearly allied to that species, and like it intermediate between the common Sallows and the smooth bright-leaved affinities of *S. phylicifolia*; resembling some of the former more nearly in general habit and in the shape of the leaves, the latter in the deciduous nature of the pubescence and in the very glandulose stipules. The branches are of laxer growth than in *S. laurina*; the twigs paler; the leaves more spreading, on longer and less dilated stalks, narrower, more acute at the base, less downy when young, and the short hairs of the underside less persistent. Catkins shorter and much more slender, especially in their advanced state, when the stalk of the capsule, although lengthened, does not, as in that species, equal or exceed the scale, the scale itself being longer and more acute; the capsule too is less grey, with more silky and more closely appressed pubescence.

No synonyms of this Salix have been ascertained. The *S. nigricans angustifolia* of Seringe's *Saules de la Suisse*, *no.* 22. A. is very similar, but the calyx-scales in his specimens are more rounded and the stigmas cleft. The division of the stigmas, it is true, depends much on circumstances in the Willows in general.—W. B.

July 1st 1830

SALIX Woollgariana.

Woollgarian Willow.

DIŒCIA Diandria.

GEN. CHAR. Male, *Cal.* a scale of an imbricated catkin, single-flowered. *Cor.* none. *Nect.* a gland or glands at the base of the stamens. *Stam.* 1—5 (or more). Female, *Cal.* and *Nect.* as in the male. *Cor.* none. *Caps.* of 1 cell and 2 valves. Seeds tufted.

SPEC. CHAR. Monandrous, erect. Leaves scarcely glaucescent, cuneato-lanceolate, minutely serrated, naked on both sides. Stipules none. Germen sessile, ovate, downy. Style short. Stigmas obtuse.

SYN. Salix Woolgariana. *Hook. Brit. Fl.* 414.
S. monandra. *Sal. Woburn.* 7. *t.* 4.
S. monandra, var. *Hoffm. Sal. v.* 1. 21. *t.* 1. *f.* 3.

UNDER the sanction of Professor Hooker, I commemorate in the name of this Willow my much esteemed friend and earliest assistant in botany the late Mr. Thomas Woollgar, an accurate and indefatigable observer of this his favourite tribe of plants. From him I learned to distinguish the present species from its near affinities, *S. Helix* and *S. Lambertiana*, from both of which it certainly differs as much as those two differ from each other. It is mentioned under *S. Lambertiana* in *English Flora*, but was first published as a species in *Salictum Woburnense*, with a figure, not the most characteristic in that beautiful work. About Lewes, where Mr. Woollgar found it, it is probably a mere stray from the ozier-grounds; but it has the appearance of being wild on the shores of the Thames near Kingston. Our specimens are from a plant brought from Lewes. The flowers appear in April, before the leaves.

Like *S. Helix* and *S. Lambertiana*, it forms a shrub or small tree 10 or 15 feet high, of light not crowded ramifica-

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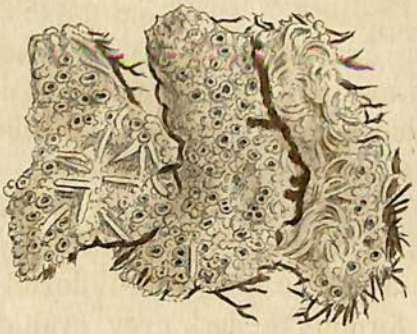
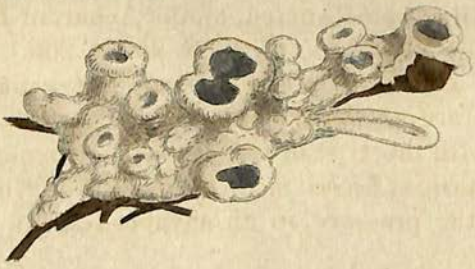
tion; the twigs often opposite, straight, smooth and polished, yellowish-grey, tinged but slightly or not at all with red, except in their tender growing state; the bark, as in the other monandrous species, of a bright lemon-yellow within. Leaves destitute of pubescence, except a deciduous woolliness which invests them when they first expand; of a pale light green as in *S. Helix*, less glaucescent than those of *S. Lambertiana*, which they more resemble in length and shape, but so tapering to the base, and so widened upwards, as to be often almost wedge-shaped, especially on strong shoots, and contracted rather abruptly to a sharp often twisted point; their edges flat, minutely serrated, chiefly at the widest part, with small, incurved, glandular teeth. Female catkins alternate or opposite, on short, stout, woolly stalks, with 2 or 3 small, recurved, silky, bracteal leaves: they are about 1½ inch long, ascending, often curved or waved, cylindrical, obtuse, very soft, of numerous flowers, which, as usual in the monandrous Willows, spread almost horizontally. Calyx-scales concave, short, oblong, rounded, silky within and without, pale in the lower, black in the upper half. Nectary single, small, pale. Germen as long as the calyx-scale, woolly, with closely appressed hairs. Style short, thick, at first scarcely perceptible. Stigmas short, rounded, slightly notched, pale, with a yellow or reddish tinge whilst in perfection. We are unacquainted with the male flowers; but it cannot be doubted that they have a single filament and a 4-lobed anther.

The style is more perceptible than in *S. Lambertiana*, and the catkins are twice as large, less crowded with florets, and much softer; more resembling in appearance, but not in the stigma, those of *S. Forbyana*. There is much reason to believe that a female catkin of the last-named species is figured for that of *S. Helix* in *Engl. Bot. t.* 1343.

Whether *S. Helix*, *S. Woollgariana*, *S. Lambertiana*, and a fourth Willow which the late Mr. Anderson regarded as *S. amnicola* of Walker should be held truly distinct, or mere seminal varieties of one species, is a question on which botanists will continue to differ in opinion, and which, we may venture to affirm, no one is qualified to decide. *S. purpurea*, few who know it will hesitate to distinguish. Hoffmann professedly united it with *S. Helix* under his *S. monandra*; but perhaps, as Sir J. E. Smith has suggested, he was not really acquainted with *S. purpurea*.—W. B.





Thelotrema Hutchinsiæ.

July 1st 1830.

THELOTREMA Hutchinsiæ.

Miss Hutchins's Thelotrema.

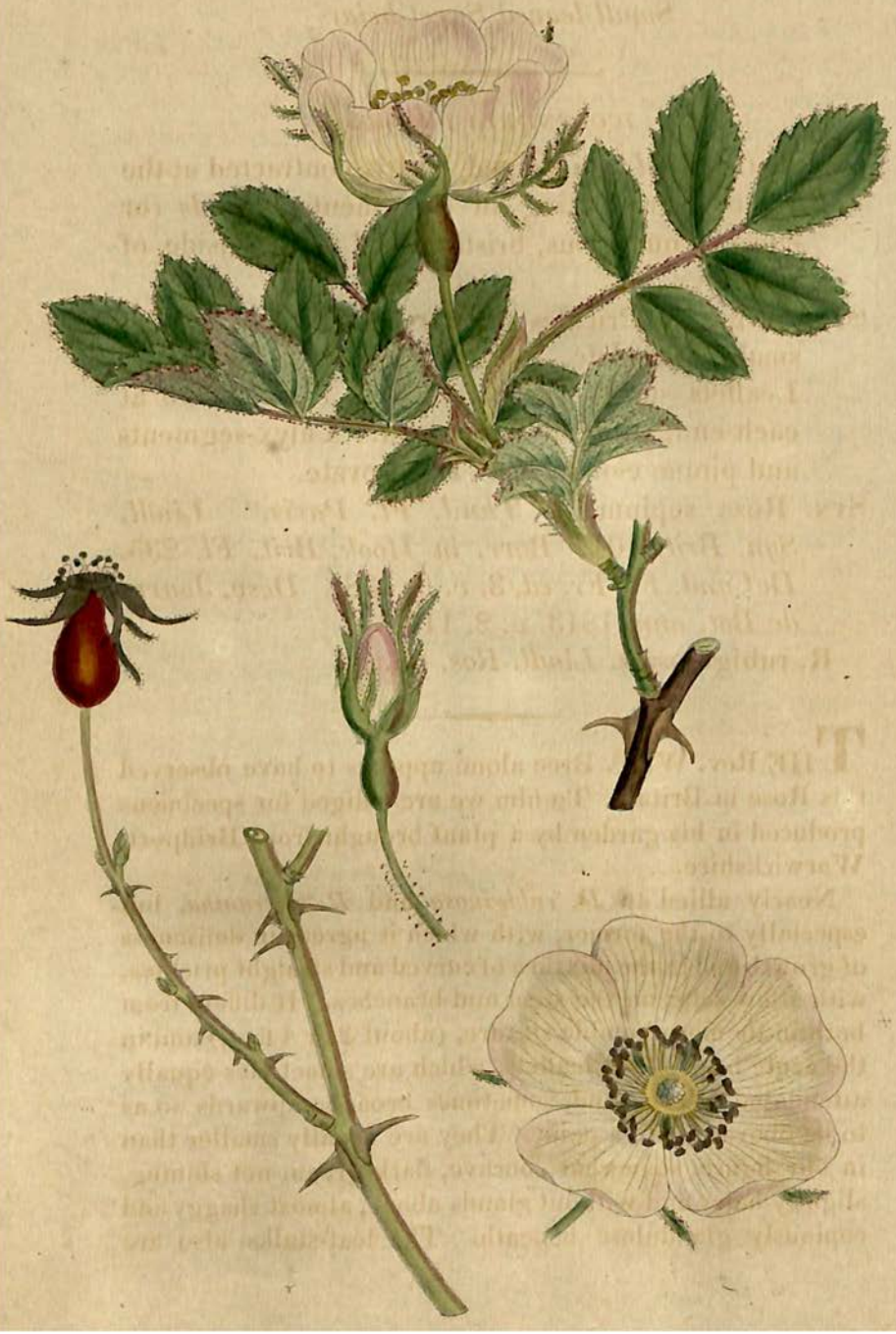
CRYPTOGAMIA Lichenes.

GEN. CHAR. *Verrucæ* formed from the thallus, simple, with an irregular orifice. *Nucleus* solid, fleshy; at length exposed and dilated into a disk, usually surrounded by a thin margin* detached from the exterior substance of the verruca.

SPEC. CHAR. Crust very white. Verrucæ crowded, obsolete, of irregular figure; at length expanding with a broken flocculose inflexed orifice, the nucleus forming a dark grey pruinose concave disk, with a white lacerated margin.

ONE of the many interesting discoveries which rewarded the unwearied botanical zeal of the late amiable and accomplished Miss Hutchins. It was found near Bantry, and communicated to Mr. Dawson Turner, who proposed to name it after its discoverer, and with whose concurrence it is referred to the genus *Thelotrema*. It may be regarded however as of disputable genus. In habit it is more similar to some of the *Variolariæ* than to the other *Thelotremata*; and it still more nearly resembles that variety, as it probably ought still to be accounted, of the Acharian *Urceolaria scruposa* (*Lichen scruposus* of *Engl. Bot. t.* 266.), which in the *Synopsis Lichenum* is called *Gyalecta bryophila*. Yet in the structure of the fructification it appears to agree essentially with the type of the genus *Thelotrema*, *T. lepadinum* of Acharius (*Lichen inclusus*, *Engl. Bot. t.* 678.), particularly in the presence, in an advanced stage, of a thin

* Formed, according to Acharius, by the rupture of a membranous perithecium, which originally invests the whole nucleus.



ROSA sepium.

Small-leaved Sweet-briar.

ICOSANDRIA Polygynia.

GEN. CHAR. *Cal.* urn-shaped, fleshy, contracted at the orifice, terminating in 5 segments. *Seeds* (or *carpels*) numerous, bristly, fixed to the inside of the calyx.

SPEC. CHAR. Prickles numerous, larger curved, smaller subulate, intermixed with a few setæ. Leaflets small, doubly serrated, hairy, acute at each end, glandulose beneath. Calyx-segments and pinnæ elongated. Fruit ovate.

SYN. Rosa sepium. *"Thuil. Fl. Paris." Lindl. Syn. Brit.* 101. *Borr. in Hook. Brit. Fl.* 235. *De Cand. Fl. Fr. ed. 3. v.* 6. 538. *Desv. Journ. de Bot. ann.* 1813. *v.* 2. 116.

R. rubiginosa *η. Lindl. Ros.* 88.

THE Rev. W. T. Bree alone appears to have observed this Rose in Britain. To him we are obliged for specimens produced in his garden by a plant brought from Bridport, Warwickshire.

Nearly allied to *R. rubiginosa* and *R. micrantha*, but especially to the former, with which it agrees in denseness of growth and in the mixture of curved and straight prickles, with a few setæ, on the stem and branches. It differs from both in its more humble stature, (about 3 or 4 feet,) and in the acute base of the leaflets, which are sometimes equally attenuated to each end, sometimes broader upwards so as to be obovate with a point. They are usually smaller than in our figure, somewhat concave, dark green, not shining, slightly hairy and without glands above, almost shaggy and copiously glandulose beneath. The leaf-stalks also are

hairy and glandulose, and mostly bear a few minute straight prickles. Stipules naked on the upper side, hairy and glandulose beneath, rather wide, not much divaricated, but little enlarged under the flowers when these are solitary or in threes; we have not seen them in larger bunches. Flower-stalks naked, or some of them bearing a few short setæ. Calyx-tube naked, ovate, with a neck; the scarlet fruit, which is scarcely larger than a common haw, retaining the same figure. Calyx-segments persistent, longer than the petals, the leafy point and spreading pinnæ narrowly lanceolate, somewhat hairy on the outside, and fringed with gland-tipped teeth. Petals white, or very faintly tinged with pink. Styles included, hairy. Stigmas depressed.—The foliage has less of the Sweet-briar fragrance and more of the turpentine scent than that of *R. micrantha*.

With Lindley we refer this plant to *R. sepium* of Thuillier, a species common in France, and varying much in the quantity of pubescence, and somewhat in the size and figure of its leaflets. Desvaux enumerates nine *varieties*, as he regards them, and describes the leaves of five of them as without glands except on the petioles. Most of our foreign specimens have very small and distant leaflets, and more flexuose twigs than our British plant, the pinnæ of the calyx-segments more divaricated, and the glands upon them less confined to the edges. In some specimens the germen is setose, with the setæ at the base larger than the rest, but less remarkably so than they usually are in *R. rubiginosa*.

Mr. Bree finds at Allesley, Warwickshire, the *R. Sabini* β. of Lindley, exactly like the Sussex plant figured in *t.* 2601. under Woods's name, *R. Doniana:* and at Claverdon, in the same county, another *var.* of that species with extremely numerous prickles, the same, we presume, as is cultivated in the garden of the Horticultural Society under the designation of *R. Doniana horrida*, and mentioned in Hooker's *British Flora, p.* 230.—W. B.

DORONICUM Pardalianches.

Great Leopard's-bane.

SYNGENESIA Polygamia-superflua.

GEN. CHAR. *Recept.* naked. *Pappus* simple; wanting on the seeds of the ray. *Calyx-scales* in 2 rows, equal, longer than the disk.

SPEC. CHAR. Leaves cordate, toothed, radical and lower stem-leaves on naked stalks; intermediate on winged stalks with stem-clasping auricles; upper sessile, clasping the stem.

SYN. Doronicum Pardalianches. *Linn. Sp. Pl.* 1247. *Jacq. Fl. Austr. t.* 350. *Hook. Fl. Lond. N.S. t.* 88. *Lightf.* 485. *Sm. Fl. Brit.* 896. *Engl. Fl. v.* 3. 446. *Hook. Fl. Scot.* 245. *Brit. Fl.* 364. *Huds.* 650.

D. *n.* 88. *Hall. Hist. v.* 1. 36.

D. majus officinarum. *Ger. Em.* 759. *f.* 2. *Moris.* 127. *s.* 7. *t.* 24. *f.* 1.

D. vulgare. *Park. Theatr.* 319. *f.* 1.

D. latifolium. *Clus. Hist. v.* 2. 16. with figure.

THE Herbarium of Linnæus proves this to be his *D. Pardalianches*, and it can scarcely be doubted that the synonyms quoted above from Smith belong to it, although another plant (except the root-leaf, which was added by him to the drawing) is figured in *English Botany*. Whatever may be thought of some of its British stations, Mr. D. Don assures us the species is truly a native of many moist woods on a clay soil in Forfarshire and Fifeshire. His father too, who published it in the sixth number of his *Herb. Brit.*, found

it at Kinnaird in Angusshire, in the Den of Duppliin in Perthshire, and in great plenty at Stobhall, seven miles from Perth. The least questionable station South of Tweed seems to be that recorded by Gerarde, "in the cold mountains of Northumberland." Our drawing was made from a specimen gathered, early in June 1810, in the park at Dalkeith, recourse being had to a garden for the root, and root-leaf, and for the dissections.

The plant creeps widely; hollow, furrowed, hairy stems about 3 feet high, rising solitary and erect from the end of compressed, transversely sulcate, somewhat woolly tubers, compared not unaptly to scorpions. They are larger than a filbert, and throw out from beneath coarse fibres, and from the sides white, fleshy, scaly, horizontal threads, which produce other tubers. Leaves soft and pliant, hairy on both sides, somewhat waved, irregularly toothed, obtuse, except the uppermost, which is rather acuminate: radical ones large, on long channelled stalks, rounded, heart-shaped, the lobes of the sinus often overlapping each other: stem-leaves 6—9; lower ones stalked; their stalks, except the lowest, winged and auricled; the auricles in the higher leaves confluent with the leaf, and in the upper ones quite lost. Calyx-scales lanceolate-linear, taper-pointed, about half as long as the ray. Flowers bright yellow. Ray of numerous linear-oblong florets in a single row, which are sometimes entire, but usually irregularly 3-toothed. Seeds oblong, furrowed: those of the ray naked, destitute of pappus, or bearing occasionally a bristle or two *: those of the disk hairy, and with a sessile crown of simple roughish bristles. The flower which terminates the stem is usually overtopped by 3 or 4 axillary branches, with each a terminal and often 3 or 4 lateral flowers. The whole herbage is somewhat clammy, from a mixture of short gland-tipped hairs, which abound most on the calyx, and the upper part of the stem, where the longer hairs are least numerous.

* So that the chief distinction of *Doronicum* from *Arnica* is not absolute in this species.

Of two specimens in the Linnæan Herbarium marked *D. plantagineum*, but not bearing the authenticating number, one has been ascertained by Mr. D. Don to be *Arnica glacialis* of Wulfen, the other is the *Doronicum* of *Engl. Bot. t.* 630. This we now regard, but with some doubt, as *D. plantagineum* of *Linn. Sp. Pl. p.* 1247, distinguishing it by the following character from *D. Pardalianches* and *D. austriacum:*

D. plantagineum. Leaves toothed; radical ones on naked stalks, ovate or slightly cordate, produced at the base; stem-leaves sessile, except the lowest which has a winged stalk with stem-clasping auricles; intermediate ones cordate-oblong; upper ovate-acuminate.

Mr. Forster has been inclined, justly perhaps, to refer this plant to *D. scorpioides* of Willdenow*. We dare not adduce synonyms from the older authors. It differs from *D. Pardalianches* as follows. Whole herb less hairy. Leaves not so soft, less waved, less strongly toothed, all except the radical ones rather acute; these last much smaller, and like the lower stem-leaves, very similar in shape to those of *Plantago major;* the base always decurrent. The uppermost leaves have a long taper point, and do not clasp the stem, which the rest do but slightly. Flowers larger; lateral ones, when the stem is branched, not overtopping the central one. Calyx-scales longer and narrower, and more nearly of the same length as the florets of the ray: the latter truly linear.

The claim of this plant to be held a British native is not so strong as that of our other species; its known stations besides that given in *English Botany* being only at Widdington, Essex, where Mr. Forster has long been acquainted

* Mr. Bentham also thinks it probable that Willdenow's *D. scorpioides* is the same species. He informs us that the *D. scorpioides* of his own Pyrenæan Catalogue, as well as of *Flore Française*, and of other French works, is a slight variety of *D. Pardalianches;* and that the *D. plantagineum* of the South of France is entirely glabrous.

with it, and in Strath Earn, Perthshire, where it was found by the late Mr. Don. Mr. Don's plant was until lately supposed to differ from the Essex one; hence the idea mentioned by Dr. Hooker of three species of *Doronicum* wild or naturalized in Britain.—W. B.

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SALIX nitens.

Shining-leaved Willow.

DIŒCIA Diandria.

GEN. CHAR. Male, *Cal.* a scale of an imbricated catkin, single-flowered. *Cor.* none. *Nect.* a gland or glands at the base of the stamens. *Stam.* 1—5 (or more). Female, *Cal.* and *Nect.* as in the male. *Cor.* none. *Caps.* of 1 cell and 2 valves. *Seeds* tufted.

SPEC. CHAR. Leaves ovate or elliptical, acute, slightly serrated; nearly naked, with sunk veins above; naked and glaucous beneath. Stipules small. Catkins on short stalks. Bracteæ small. Calyx-scales oblong, hairy, longer than the hairy stalk of the germen. Style longer than the stigmas.

SYN. Salix nitens. *Sm. Engl. Fl. v.* 4. 175. *Hook. Brit. Fl.* 429. *Salict. Woburn.* 87. *t.* 44.

THE plant from which our male specimens were taken was communicated by the late Mr. G. Anderson, who first distinguished the species: the female came from Teesdale.

An upright shrub, of rather taller and stouter growth than *S. Borreriana*, which it resembles in the dark mahogany hue of its shining twigs, most remarkable in the male plant. Young shoots slightly pubescent. Leaves about 1½ inch long, on a short reddish stalk, rounded at the base, sharp-pointed, often waved or twisted; their margin slightly cartilaginous, frequently undulate, serrated or rather crenate, either throughout or with the exception of a small space towards the base, with gland-pointed incurved teeth; upper surface dark green, shining, inconspicuously silky when young, afterwards quite naked except on the mid-rib; underside glaucous or even white; nerves and

veins sunk above, prominent beneath. Stipules deciduous*, small, ovate or half-heart-shaped, glandulose on the edges and on the upper surface; rather more considerable on the female than on the male plant. Male catkins scarcely an inch long, thickish, cylindrical, on a short woolly stalk with 2—4 nearly sessile, recurved, entire, or minutely serrated, oblong bracteal leaves, clothed on the underside and fringed with long silky hairs. Scales closely-set, oblong, rounded, concave, pale and membranous in the lower part, dotted with red and finally turning black at the point. Nectary not half so long as the scale, truncate, sometimes irregular. Stamens 2, slightly bearded at the base; anthers tinged with red. Germen rounded at the base, contracted towards the middle, and attenuated upwards; its stalk woolly, and when the flowers are in perfection about half as long as the scale, lengthening as the fructification advances. The germen itself is densely clothed with short, appressed, silky hairs, which remain on the full-grown capsule. Style smooth, rather longer than the pale stigmas. The flowers appear with us before the leaves in April or May, about a fortnight later than those of *S. Borreriana*.

S. nitens is nearly allied to *S. Weigeliana*, and still more nearly to *S. Crowcana*. The leaves however of this last are less pointed, almost obovate, and in every stage without pubescence even on the leaf-stalk, their edges rarely waved and more obscurely crenate; the scales of the catkin shorter and rounder. On the combined filaments of the stamens we lay no stress, believing that state to be but an accidental monstrosity. Indeed they are represented in *Salictum Woburnense* as changing into germens, as those of *S. bicolor* of Ehrhart, and of some of the common Sallows have been observed to do.—W. B.

* It has been asserted that the stipules of Willows, when produced at all, never fall but with the leaves; but experience disproves the assertion.

2656.

1373*4

SALIX Weigeliana.

Weigelian Willow.

DIŒCIA Diandria.

GEN. CHAR. Male, *Cal.* a scale of an imbricated catkin, single-flowered. *Cor.* none. *Nect.* a gland or glands at the base of the stamens. *Stam.* 1—5 (or more). Female, *Cal.* and *Nect.* as in the male. *Cor.* none. *Caps.* of 1 cell and 2 valves. *Seeds* tufted.

SPEC. CHAR. Leaves elliptical, rhomboidal, or almost round, with a short point, obsoletely crenate; naked on both sides; glaucous beneath. Stipules small. Catkins on short stalks. Bracteæ small. Calyx-scales oblong, hairy, longer than the hairy stalk of the germen. Style longer than the stigmas.

SYN. Salix Weigeliana. *Willd. Sp. Pl. v.* 4. 678. *Hook. Brit. Fl.* 420. (but not of *Salict. Woburn.*)

S. Wulfeniana. *Sm. Engl. Fl. v.* 4. 176. *Rees's Cycl. n.* 16. *Salict. Woburn.* 95. *t.* 48. (excl. from each the foreign synonyms.)

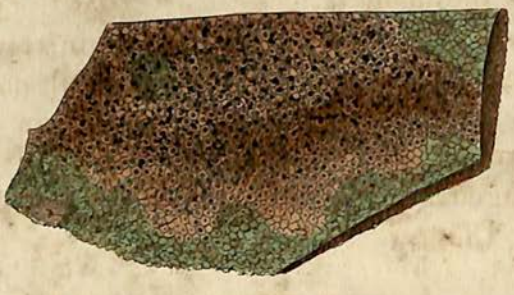
REGARDED as *S. Weigeliana*, on the concurrent authority of specimens from different German botanists, agreeing precisely with the fertile ones here figured, confirmed by the accordance of the description given by Willdenow. It seems not uncommon in the more mountainous parts of Britain. Our plants are from Breadalbane, and we have gathered the species in Yorkshire and in Westmoreland. The true *S. Wulfeniana* of Willdenow we have no reason to believe a British species. We have seen of it several foreign specimens of both sexes; in all of which, and especially in those from the younger Jacquin, preserved in the Smithian collection, the bracteal

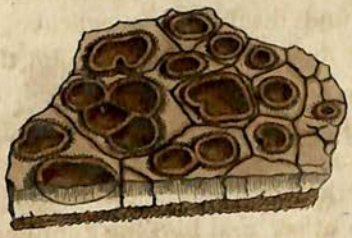
leaves are large and closely resemble those of the leafy twigs, and the scales of the catkin are naked except a marginal fringe.

An upright shrub about 10 feet high; probably of more humble growth in its native stations. Twigs shining, greenish, tinged with brown, especially in the young state, when they are more or less downy, but often very slightly so. Leaves on short stalks, thin, dark-green, still more glittering than those of *S. nitens*, and without pubescence, except a little on the upper side of the mid-rib and leaf-stalk; nerves and veins very slightly sunk above, prominent on the under-side, which is very glaucous; margin slightly crenate and toothed, rarely undulate. Stipules small and like those of *S. nitens*. The catkins appear a little before the leaves, about the same time as those of *S. nitens*, to which they are very similar. The calyx-scales however are less concave, rather more pointed and lanceolate, and their upper half more generally blackish brown, even in freshly opened flowers. The female catkins are longer, and the germen on a rather longer stalk. The bracteæ are broader, usually ovate; more generally and perceptibly serrated in the male plant, mostly, but not always, entire in the female.

The outline of the leaf is very variable, being orbicular approaching to cordate, as in the male specimens on our plate, or elliptical, with the base either rounded or acute, or with the sides dilated into an almost rhomboidal figure: in all cases a short oblique point is mostly found. In what seems a variety of this species the leaves are more conspicuously toothed, rather silky when young, the young shoots more downy, and the germen pubescent towards the point only. This form appears a link between *S. Weigeliana* and *S. tetrapla*, and approaches near also to the *S. tenuifolia* of Smith from Kirkby Lonsdale, which has indeed more the habit of *S. rupestris* and its affinities. The *S. tenuifolia* figured in *Engl. Bot. t.* 2186, is *S. bicolor* of Ehrhart; *S. bicolor* of *Engl. Bot.* should therefore resume its first trivial name, *laurina*. It is difficult to define satisfactorily the distinctions between *S. Weigeliana* and *S. nitens;* yet the aspect of the two is unlike, from the dark hue of the whole bush in *S. nitens*, and there seems to be a real difference in the structure of the leaves.

Whether the nearly allied Willows of this group again are species or not, is at present a mere matter of opinion, and it would be difficult to bring it satisfactorily to the test of experiment. An acute friend holds them "variations of varieties, *a disgrace to the page of botany*." Differing widely from this sentiment, we think it desirable that they should individually engage the attention of botanists.—W. B.





Urceolaria rufescens.

LECIDEA rufescens.

Reddish sunk-shielded Lecidea.

CRYPTOGAMIA Lichenes.

GEN. CHAR. *Patellulæ* sessile or more or less immersed, with a margin of a different substance from the thallus.

SPEC. CHAR. Crust indeterminate, thin, tartareous, tessellated, brown. Patellulæ small, dark chesnut, immersed; at length flat with an elevated entire margin.

SYN. Sagedia rufescens. *Ach. Lich. Univ. 329. Syn.* 135.

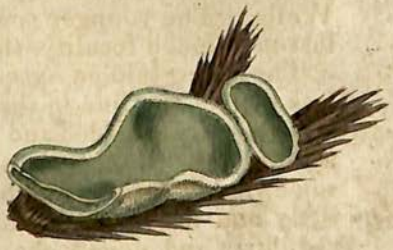
A DISTINCT and apparently very rare Lichen. Indeed we have no knowledge of its having been observed elsewhere than at Gorlestone, Suffolk, whence specimens growing, like ours, on sandstone, were communicated to Acharius. What appears to be a variety, with a less considerable crust and more prominent patellulæ, occurs near the same place on flints.

The crust forms irregular patches, composed of small, flattish, angular, crowded frustula, various in size and figure, thin, but tartareous; their surface smooth, unpolished, and of a reddish brown varying in intensity, their internal substance whitish. Patellulæ numerous, often several in one areola of the crust; immersed at first, gradually expanding and disclosing a concave, at length flat, disk, of a darker and redder brown than the crust, almost black when dry, encircled by a rounded, entire, slightly raised margin of the same or a rather paler hue, with which the crust also is tinged for a little space around. When separate, their outline is usually circular, but they often crowd each other and become confluent, and not un-

frequently obliterate, or conceal, as they increase in size, the areola in which they are produced. In general the proper margin of the patellula is so incorporated with the crust that its presence is not very decidedly evident.

This species approaches in structure to *Lichen athroocarpus*, *t.* 1829. We do not understand satisfactorily the distinctions between the Acharian genera *Urceolaria* and *Sagedia;* and since every gradation is to be found, among the crustaceous Lichens, between completely immersed and completely protuberant apothecia, it is perhaps best to refer, for the present *, to *Lecidea* all those species in which the apothecium has a proper margin, whether it be or be not surrounded by an accessory margin from the thallus.—W. B.

* An improved generic distribution of the Lichens is expected from Professor Fries of Lund. He is understood to have already published on the subject; but we have not yet been able to procure a copy of his work.



Endocarpon laete-virens.

October 1st 1830.

VERRUCARIA lætè-virens.

Bright-green Leafy Verrucaria.

CRYPTOGAMIA Lichenes.

GEN. CHAR. *Tubercles* of a different substance from the thallus, simple, convex, not expanding, but furnished with a central pore, and inclosing a somewhat gelatinous nucleus.

SPEC. CHAR. Scales leaf-like, thin, smooth, grass-green, irregularly orbicular, with shallow rounded lobes; underside white, appressed and fibrous in the central part, free elevated and naked at the edges. Tubercles . . . .

SYN. Endocarpon viride. *Ach. Lich. Univ.* 300. *Syn.* 100.

THE *Endocarpon Thunbergii* of Acharius having been previously named *Lichen viridis* by the younger Linnæus, we cannot but prefer for the present species the trivial name by which Mr. Turner communicated it to the Swedish Lichenist, in whose works alone it has hitherto been published. It appears to have been noticed in the British islands only, and here it is not of general occurrence. It abounds on some of the Scottish mountains, chiefly on *Sphagnum*, on which it grows also near Esher, Surrey, and on Black Down, Sussex; the late Miss Hutchins and Sir T. Gage gathered it in Ireland; and it is found on wet parts of the sand-rocks in the neighbourhood of Tonbridge Wells. The younger specimen here figured was from the last-mentioned locality, the other from Ireland.

The scales seldom exceed $\frac{1}{4}$ of an inch in width, and are less than $\frac{1}{4}$ of a line in thickness, are sometimes scattered, more usually crowded and often in some degree imbricated, membranous rather than coriaceous, flexible and of a somewhat gelatinous appearance when wet, shrinking a little and becoming brittle in drying; at first orbicular, regularly and deeply concave, and much like the scutella

of a *Parmelia;* soon flatter, sinuated, and at length lobed; the lobes variously waved, rounded, or occasionally slightly angular, or in rare instances almost linear, mostly entire, sometimes again more or less deeply sinuated. The upper surface is smooth, not polished, of a pleasant grass-green, often yellowish in young fronds, changing in drying to a greyish olive green sometimes tinged with brown, but quickly resuming, unless long dried, the original hue when moistened: when highly magnified, particularly in a dry state, it is seen to be minutely mottled or dotted with grey. Underside pale when wet, very white when dry; naked, smooth and even at the edges, which are inflexed in young and often in old specimens; but in the latter, although usually more or less raised, sometimes even slightly reflexed: every other part of the frond is closely attached by a white cottony substance, apparently of the nature of radicles. Internal substance green, except a narrow white layer at the base. Tubercles unknown. Minute, blackish, elevated, somewhat gelatinous dots, of a parasitical appearance, are often scattered on the surface of the thallus.

Acharius has expressed a suspicion that this species is but the primordial leaves of a *Cenomyce;* yet in the appressed mode of growth, and in the manner in which the scales are attached to the substance on which they grow, it agrees with other leafy *Verrucariæ*, and we would assign it a place in the genus between *V. psoromoides* and *V. pulchella.* In the substance of the thallus, and the cup-like figure whilst young, it approaches the last-named species; but it most resembles *V. psoromoides* in general aspect, the lobes being often of a similar figure, and the colour almost the same when dry, although brighter when wet. The young fronds, however, of that plant are never so cup-like nor so conspicuously edged with white, and the old fronds are more imbricated, and the underside is black except at the edges, which are not smooth but downy. If young fronds of *V. squamulosa* are often much like those of *V. lætè-virens*, their edges are rarely so much inflexed, or of so pure a white, and their thicker substance, their duller hue, and the dark colour of the substance which attaches them to the soil, sufficiently distinguish them. In the later stages the two plants very little resemble each other.—W. B.

ONONIS arvensis.

Restharrow.

MONADELPHIA Decandria.

GEN. CHAR. *Cal.* campanulate, 5-cleft, with linear segments. *Vexillum* large, streaked. *Stam.* monadelphous. *Pod* turgid, sessile, few-seeded. —*Decand.*

SPEC. CHAR. Stems procumbent or creeping, hairy all over. Flowering branches ascending, thickly leaved. Lower leaves trifoliate, upper ones simple. Leaflets roundish-oval or oblong, serrate and covered with glandular hairs. Flowers sessile or borne on short footstalks, scarcely spiked. Lobes of the calyx rather longer than the pods.

SYN. Ononis arvensis et O. repens. *Linn. Syst. Nat. ed.* 12. *v.* 2. 478.

O. arvensis, O. repens, et O. spinosa. *Linn. Syst. Veg. ed.* 14. 651.

O. arvensis α et γ. *Sm. Engl. Fl.* 3. 267.

O. spinosa et O. repens. *Linn. Spec.* 1006.

O. procurrens. *Wallr. Sched. Crit.* 381. *Decand. Prod.* 2. 162.

O. spinosa. *Fl. Dan. t.* 783.

Ononis. *Fuchs. Hist.* 60. ic.

Ononis maritima procumbens foliis hirsutie pubescentibus. *Dill. Hort. Elth. t.* 25.

THERE is much confusion in the synonymy of the two common red-flowered species of *Ononis*, most authors having considered the presence or absence of the spines as a specific

difference, and having accordingly referred each plant to both species, according to the state in which the specimen was gathered. The erect kind, which is almost constantly spinous, is certainly the *O. antiquorum* of Linnæus, and ought therefore to retain that name. The species here figured is usually unarmed in spring, but more or less prickly in autumn, and includes without doubt Linnæus's *O. repens*, which I cannot even consider as a well marked variety. Of his *O. spinosa* there is no authentic specimen; but he appears to have first given that name to this plant, and to have afterwards (*Syst. Nat. ed.* 12.) changed it to *O. arvensis*, and it is probably by mistake that Murray in the 14th edition of the *Systema Vegetabilium* inserted both *O. arvensis* and *O. spinosa*. I do not think that Linnæus ever intended to include the erect species (as Smith has done) in his *O. arvensis*, for he constantly retains it as a distinct plant under the name of *O. antiquorum*.

The wild specimen figured in the plate before us was communicated by the Right Hon. Lady Arden, who for several years past has found both this and the *O. antiquorum*, when removed from the vicinity of Epsom into the garden at Nork Park, to be permanent in their characters and highly ornamental. *O. arvensis* occurs not unfrequently, at least in the South of England, on grassy banks in a chalky soil, and in loose sand on the sea-shore in various places.

Although the *O. arvensis* is a very distinct species from the *O. antiquorum*, with which it is impossible to confound it when seen growing, yet it is difficult to give any positive characters by which the two plants can be readily distinguished in herbaria. The stems of the *O. arvensis* are prostrate and creeping, with ascendant branches, which are usually unarmed, although they occasionally degenerate into spines, especially at the end of summer and in luxuriant specimens grown in a dry and hot situation. Every part of the plant, but particularly the young shoots, is covered

with glandular hairs intermixed with others usually longer and not glandular; the latter are frequently arranged on the stem, below the insertion of the stipules, in one or two opposite rows, as has been observed of the short hairs of the *O. antiquorum*. The lower leaves have three leaflets, the upper ones but one; these leaflets are broader, less rigid and larger in proportion to the other parts of the plant than in the *O. antiquorum*, those of the flowering branches especially are more numerous and apparent, being usually as long or longer than the calyx. The calyx is longer in proportion to the flower, and shorter in proportion to the fruit, and always much more hairy. The corolla is usually rather smaller. The seed-pods are about the length of the calyx, and hairy. The seeds covered with more distant and more prominent granules. The spinous specimens of this species which I have from various countries do not in any other respect differ from those which are unarmed; and as I have frequently observed the same plants which have flowered entirely unarmed in spring, acquire the spines by the end of the year, I cannot consider the two states of the plant even as distinct varieties.

The *O. antiquorum* of Linnæus, which is figured in *Engl. Bot. v.* 10. *t.* 682. under the name of *O. arvensis*, has the stems nearly erect, with divaricate branches. It is usually glabrous, or covered only with a very short down, with the exception of a single or double line of hairs down the young branches; these hairs are by no means constant, and never so long as in the *O. arvensis*, but much more apparent, on account of the extreme shortness or total absence of the general down of the plant; and this is probably the cause of Wallroth's mistake, in considering the presence or absence of these hairs as a characteristic difference between the two species. The leaves, especially those of the flowering branches, are much smaller in the *O. antiquorum* than

in the *O. arvensis*, each leaflet being generally only half or a third of the length of the calyx; they are glabrous, with the exception of a few very nearly sessile glands. The calyxes and pods have also but very few hairs.

The *O. hircina* of Jacquin (*O. fœtida* All., or *O. altissima* Lam.) is a perfectly distinct species indigenous in the South of Europe only.—G. B.

Oct.1st 1830.

SALIX phillyreifolia.

Phillyrea-leaved Willow.

DIŒCIA Diandria.

GEN. CHAR. Male, *Cal.* a scale of an imbricated catkin, single-flowered. *Cor.* none. *Nect.* a gland or glands at the base of the stamens. *Stam.* 1—5 (or more). Female, *Cal.* and *Nect.* as in the male. *Cor.* none. *Caps.* of 1 cell and 2 valves. *Seeds* tufted.

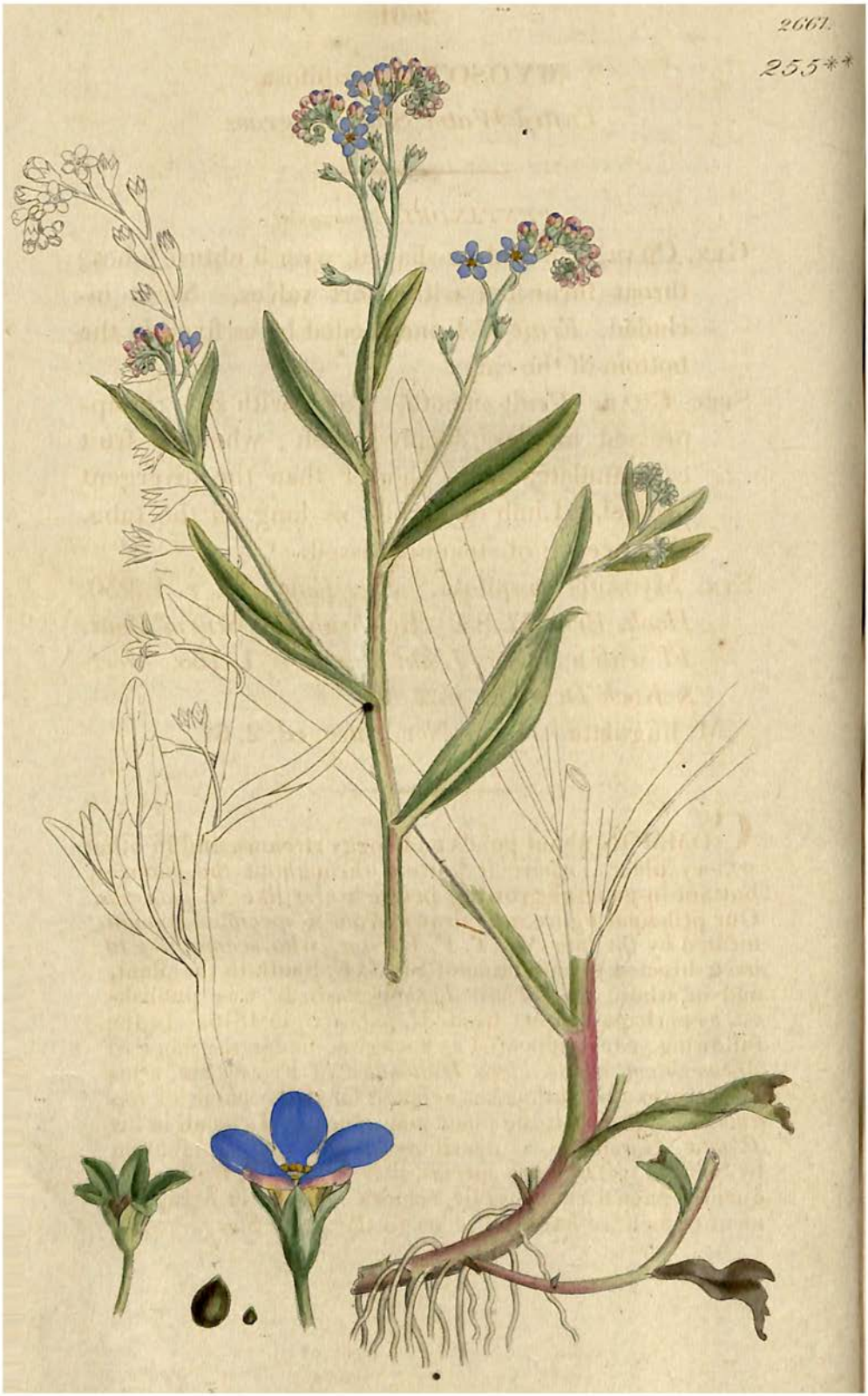
SPEC. CHAR. Leaves elliptic-lanceolate, acute at each end, strongly serrated, naked on both sides; glaucous beneath. Stipules small. Young shoots pubescent. Calyx-scales oblong, hairy, longer than the naked stalk of the naked germen. Style as long as the stigmas.

GATHERED in Highland valleys of Scotland, particularly in Glen Tarfe near Fort Augustus, Inverness-shire, and in the vicinity of Ben Lawers, Perthshire, in 1810; since which time our male plant has been growing along with *S. bicolor* of Ehrhart, and *S. Croweana*, and has become an upright much branched shrub, of about 5 feet high, scarcely half the height of those two species, flowering two or three weeks earlier, about the middle of April, and sometimes again at Midsummer.

Twigs straight, yellowish green, closely but inconspicuously pubescent whilst young. Leaves scarcely more than an inch long, on slender stalks of about one-third their length, acute at each end, mostly a little twisted towards the point; of a bright shining full green above, with the nerves and veins very slightly sunk; the underside blueish; both sides

sprinkled with minute appressed hairs whilst young, at length naked except the upper side of the stalk and mid-rib; margin slightly cartilaginous and recurved, serrated throughout with conspicuous, somewhat waved, gland-tipped teeth. Stipules deciduous, half-ovate or semicircular, glandulose. Catkins copiously produced, mostly withered before the leaves burst forth, cylindrical, half an inch long, closely set with flowers; their stalks very short, usually furnished with 2 or 3 very small, recurved, strap-shaped floral leaves, which are smooth above and silky at the back. Scales slightly concave, oblong, somewhat acute in the lower and rounded in the upper part of the catkin, brown or reddish towards the point, clothed with long silky hairs. Stamens 2. Nectary a single, interior, truncate gland. In a specimen collected in 1810, part of which is outlined on the annexed plate, the female flowers are as characterized above, and their stigmas half-cleft, with spreading segments.

This beautiful and apparently distinct Willow bears no slight resemblance, in the size, figure, and serratures of the leaves, to *Phillyrea latifolia*. In the arrangement of the genus it may stand between *S. bicolor* and *S. Dicksoniana*, in both of which the leaves are for the most part obsoletely serrated, and of a figure approaching to obovate with a point. *S. Dicksoniana* is moreover of more humble stature, and has both the germen and its stalk densely silky. The figure in *Engl. Bot. t.* 1390 is unfortunately bad; and has led to doubts as to that species, which only authenticated specimens could remove.—W. B.



MYOSOTIS cæspitosa.

Tufted Water Scorpion-grass.

PENTANDRIA Monogynia.

GEN. CHAR. *Cor.* salver-shaped, with 5 obtuse lobes; throat furnished with short valves. *Stam.* included. *Fruit* of 4 one-seeded lobes fixed in the bottom of the calyx.

SPEC. CHAR. Fruit smooth. Calyx with straight appressed bristles, deeply 5-cleft; when in fruit campanulate, open, shorter than the divergent pedicel. Limb of corolla as long as the tube. Pubescence of stem appressed.

SYN. Myosotis cæspitosa. *Sm. Engl. Fl. v.* 1. 250. *Hook. Brit. Fl.* 83. *Reichenb. in Sturm Deut. Fl.* with a figure. *Link. Enum. v.* 1. 165. *Mert. & Koch Deut. Fl. v.* 2. 42.

M. lingulata. *Fries Nov. Suec. ed.* 2. 64.

COMMON about ponds and boggy streams, and in other watery places, where it flowers throughout the summer, but not in general growing in the water like *M. palustris*. Our principal figure was drawn from a specimen communicated by the late Mr. T. F. Forster, who seems first to have directed the attention of Sir J. E. Smith to the plant, and in whose own *Flora Tonbridgensis* it was published, as perhaps distinct from *M. palustris*, in 1816. In the following year it appeared as a species, under the name of *M. maritima*, in the *Flora Hallandica* of Fries; but in his later works this author has adopted for it the name of *lingulata*, supposing it the plant mentioned by Lehman in his *Plantæ Asperifoliæ*, as distributed under that designation by Schultz. The same species, it is presumed, was subsequently named *cæspitosa* by Schultz himself, in a supplement (which we have not seen) to the *Flora Stargardensis*,

and this name is now generally adopted. Some little doubt may indeed be entertained of the identity of *M. lingulata* and *M. cæspitosa*, since Steudel and Hochstetten, as Hooker has observed, give the two as distinct in their enumeration of the plants of Germany and Switzerland.

However this may be, the plant before us is well distinguished from *M. palustris* by the appressed bristles on the stem, the more deeply divided calyx, and the entire (not emarginate) segments of the corolla. The limb of the corolla is usually flat when fully expanded, not always concave as has been inadvertently stated; but it is much smaller and less conspicuous than in *M. palustris*, being in general but little longer than the calyx, whilst in that it is usually larger than it is figured in *t.* 1973. In both, however, it varies a little in size.

Root annual, or at most biennial, fibrous, not stoloniferous, nor creeping; but radicles are thrown out from the lower part of the stem. Stems mostly several, varying in being erect or procumbent, and in length from a few inches to two feet, producing axillary branches, usually almost from the base. Leaves pale green, lingulate, obtuse, sometimes emarginate, sprinkled, like the stem, with appressed bristles; the lower ones tapering to an indistinct bordered stalk; the edges, chiefly of the upper ones, decurrent, but so slightly as to affect but little the roundness of the stem. Flower-stalks about as long as the calyx whilst in flower; becoming afterward twice as long, spreading, and at length deflexed. Calyx bell-shaped, slightly rounded at the base, divided about half-way into broad, somewhat acute, oblong-triangular, spreading segments, each furnished, like the leaves, with a prominent central and two obsolete lateral nerves, which unite in a minute callus at the point. Style shorter than the tube of the corolla. (In *M. palustris* it is as long as the tube.) Stigma capitate, concave. Lobes of the fruit diverging from the persistent base of the style, shining, dark brown, ovate or of a rounder figure, sharply two-edged, carinate towards the point on the gibbous upper side.

M. repens of Don, which is found to retain its characters when raised from seed in a garden, much resembles the present species, but has the pubescence of the stem spreading, and the segments of the corolla slightly emarginate. Small leaves usually subtend many of the flowers, chiefly in the lateral racemes; and such leaves are occasionally, but more rarely, found in the racemes of *M. cæspitosa*.—W. B.

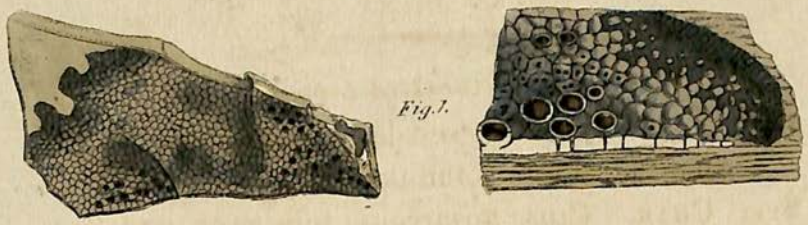


Fig. 1.

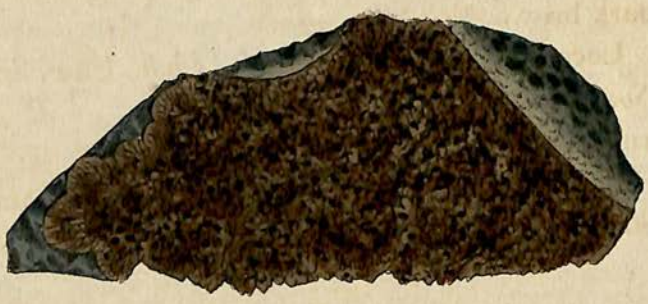


Fig. 2.

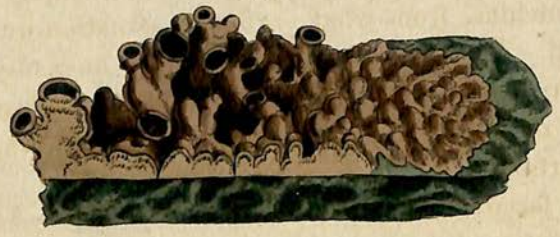


Fig. 3.

Lecanora milvina Fig. 1.

_____ *aipospila* __2.

_____ *spodophæa* __3.

October 7th 1830.

2662. (Fig. 1.)

LECANORA milvina.

Wide-spread Rock Lecanora.

CRYPTOGAMIA Lichenes.

GEN. CHAR. *Scutellæ* sessile, with a margin of the same substance as the thallus.

SPEC. CHAR. Crust tartareous, thin, even, areolate, gray or brown, with a black filmy substratum. Scutellæ small, nearly flat; margin entire; disk dark brown.

SYN. Lecanora milvina *α*. *Ach. Lich. Univ.* 358. *Syn.* 151.

Parmelia milvina. *Ach. Meth. Suppl.* 34.

Lichen milvinus. *Wahl. Fl. Lapp.* 410. *Fl. Suec.* 805.

SENT on gray flinty slate-rock from Ireland, by the late Miss Hutchins, from what particular situation we are not informed. Wahlenberg alone appears to have observed it elsewhere; first in Norwegian Finmark, and subsequently in other districts of Lapland, chiefly near the sea, and in some parts of Sweden.

Crust forming very wide flat patches*, composed of small warts, scattered towards the edges on a black sometimes dendritic film, and there roundish, entire, or slightly lobed, but crowded in the central parts into a compact congeries of minute, gently convex, angular areolæ, the interstices of which are scarcely visible without a glass: surface unpolished, smoky gray: in specimens from Wahlenberg it is of the same hue in some parts, but chiefly of a dark chestnut-

* "Totus Lichen æquabilis et regularis ut neque scutellæ supereminent, integras rupes ex toto fere obducit."—*Wahl. Fl. Lapp.*

brown: internal substance white, with a little green near the surface. Scutellæ numerous, very little protuberant, smaller than poppy-seed, circular except where crowded; margin narrow, entire, slightly elevated in young scutellæ, subsequently depressed by the swelling of the dark brown or blackish disk, which becomes however but moderately convex. Those areolæ on which scutellæ are not yet expanded are mostly marked with minute black dots, usually three or four on an areola, as if from incipient fructification.

L. milvina β. of Acharius is erroneously given in *Engl. Bot. t.* 2152 as *Lichen simplex*, along with a specimen of the true plant of Davies, which Acharius also was misled to regard as the same. It scarcely belongs to the species now before us; yet we are not prepared to assert positively that it does not. It may bear for the present its original trivial name, *privigna*, the other Lichen confounded with it in the *Methodus Lichenum* being but a state of *Opegrapha Persoonii*.

We adopt the Acharian genus *Lecanora* with reluctance, as distinguished by an unsatisfactory *character* from *Parmelia*. Some of its species seem to require transferring to *Lecidea*, if even this genus can be maintained.—W.B.

2662. (Fig. 2.)

LECANORA aipospila.

Loose branchy-crusted Lecanora.

CRYPTOGAMIA Lichenes.

GEN. CHAR. *Scutellæ* sessile, with a margin of the same substance as the thallus.

SPEC. CHAR. Crust tartareous, rugged with branch-like granulations, brownish gray; edges plicate. Scutellæ small, terminating the granulations; margin entire, at length depressed; disk dark brown.

SYN. Lecanora aipospila. *Ach. Lich. Univ.* 385. *Syn.* 155.

Parmelia aipospila. *Ach. Meth. Suppl.* 36.

Lichen aipospilus. *Wahl. Fl. Lapp.* 409. *t.* 27. *f.* 2. *Fl. Suec.* 805.

GATHERED by Mr. W. Robertson, in 1821, at Bamburgh and Staples Islands, on the coast of Northumberland. The present writer believes that he saw the same species on maritime rocks in Orkney, in 1808, but he did not obtain specimens.

The crust spreads widely. It is of a dull brownish or reddish gray, sometimes partially lead-coloured, and is composed of tartareous granulations, which are sufficiently large to form a loose surface very uneven to the naked eye, and most variable in figure, generally lobed and contorted, often assuming the form of irregularly cylindrical, occasionally subdivided, branches; towards the edges of the patch they are less elevated, and the edges themselves are thin and plicate, crenate or slightly lobed, bordered with some-

times a paler sometimes a browner zone, and sometimes, not always, with a narrow line of black. The internal substance is whitish, with a very narrow stratum of green near the surface. Scutellæ numerous, not larger than poppy-seed, bursting from the apex of the granulations, to which they give, in their infant state, a resemblance to the papillulæ of the genus *Isidium*, and which they surpass considerably in diameter when fully expanded, so that they have then a salver-like figure. Margin circular, entire, obtuse but narrow, slightly elevated when young, at length depressed. Disk soon becoming convex, of a very dark dull brown or almost black, pale reddish brown within; occasionally falling out and leaving a cup-like hollow.

An extremely remarkable Lichen, a link, apparently, between the genera *Lecanora* and *Isidium*, approaching very closely to the latter in the structure of the thallus.—W.B.

2662. (Fig. 3.)

LECANORA spodophæa.

Close branchy-crusted Lecanora.

CRYPTOGÁMIA Lichenes.

GEN. CHAR. *Scutellæ* sessile, with a margin of the same substance as the thallus.

SPEC. CHAR. Crust tartareous, areolate, formed of concrete branch-like granulations, gray; greenish when wet. Scutellæ small, terminating the granulations; margin slightly crenulate, at length depressed; disk reddish brown.

SYN. Lecanora spodophæa. *Ach. Lich. Univ.* 385. *Syn.* 155.

Parmelia spodophæa. *Ach. Meth. Suppl.* 37.

Lichen spodophæus. *Wahl. Fl. Lapp.* 409. *Fl. Suec.* 805.

FOR the addition of this curious Lichen also to the British list we are indebted to Mr. Robertson, who found it growing with *L. aipospila* on the coast of Northumberland. Wahlenberg originally discovered both species on the coasts of Norway; nor do they appear to have been collected in any other country, unless the *Lichen defraudans* of Olafsen, found by him in Iceland, be, as Acharius suspected, the same as *L. spodophæa.*

The crust of this species, which is said to spread widely, is composed of granulations which may be seen in some cases to be cylindrical and branch-like; but they are so intimately connected and, mostly, confluent, that it is rarely possible to discover their individual shape. The mass they form appears nearly level and continuous to the naked eye; but a lens shows it to be divided by narrow cracks into small

areolæ with an unequally granulated surface, of a dull brownish gray, sometimes spotted with lead-colour, greenish when wet; internal substance pale brown or dingy white, with some green near the surface. We have no British specimen that exhibits the edge of the patch. Scutellæ circular, smaller than poppy-seed, apparently sessile on the surface of the crust, but each terminating in reality a granulation of much smaller diameter than its own. Margin in young scutellæ somewhat elevated, thickish, more or less crenulate; when older, depressed or obliterated: disk dark reddish brown, flat or moderately convex, reddish within, and sometimes leaving an orange-coloured cup when partially broken out.

This species bears some general resemblance to *L. sophodes*, *t.* 1791, but its real structure, although more minute in all its parts, is most similar to that of *L. aipospila*. There is reason to doubt whether *Lichen poliophœus* of Wahlenberg, another native of the shores of Norway, is more than a variety of *L. spodophœa*. Its discoverer observes that its crust imbibes water less freely, and differs by never becoming green*, and by its somewhat fibrillose whitish edges. In a specimen of each, from Dr. Wahlenberg himself, an almost miscroscopic white cotton-like edge is present. In that of *L. poliophœa* the crust imbibes water but slowly, and its hue scarcely changes; but it has even in its dry state a slight tinge of green: its scutellæ are paler and redder, and their outline is less regularly circular. *Lecanora helygea* of Acharius, a Swiss Lichen, which is stated to be nearly allied to *L. spodophœa*, appears from the description to be a *Lecidea*. Indeed some of the apothecia on the authentic specimen of *L. spodophœa* above referred to have a somewhat ambiguous appearance.—W.B.

* In *Ach. Meth. Suppl.* and *Wahl. Fl. Lapp.*—He qualifies this however in his *Fl. Suec.*, where the expression is "*vix virescit.*"

STATICE binervosa.

Dwarf Sea-Lavender.

GEN. CHAR. *Cal.* of 1 leaf, funnel-shaped, plaited, filmy. *Pet.* 5. *Seed* single.

SPEC. CHAR. Leaves spathulate, three- or five-nerved below, coarsely reticulate above; a variable mucro beneath the point. Panicle branched; branches secund, angular in front, rounded behind. Calyx-ribs terminated about the base of the five, blunt, membranous segments.

SYN. Statice cordata. *Smith Pl. of S. Kent*, 18. *t.* 2. *f.* 2, 4, 6, 7.

S. spathulata. *Hook. Brit. Fl.* 145.

S. oleæfolia. *Decand. Fl. Fr.* (1805). *v.* 3. 422 ?

S. Limonium β. *Sm. Engl. Fl. v.* 2. 116.

Limonium minus. *Dill. in Raii Syn.* 202.

L. parvum. *Ger. Em.* 411. *f.*

THE leaves of *S. Limonium* (*Engl. Bot. t.* 102) being early pronounced "nerveless," and superficially appearing so, the distinctive character to be gained from them was long overlooked. Thence arose the union of *S. Limonium* with the well defined species before us, which is not uncommon upon the sides of chalk cliffs along our southern coast, flowering from June to September, and may, probably, so occur in the Isle of Wight. Gerarde reports its being found at Margate; Ray at Harwich: it is the *S. reticulata* said in the Botanist's Guide to be found at Dover; and we are informed in Hooker's *British Flora*, that it is the plant formerly taken for *S. reticulata* at the Mull of Gallo-

way: Mr. Wilson finds it on the coasts of Wales and Cumberland, and it was long since collected by Mr. Borrer at Rottingdean in Sussex.

The brittle stems of this plant become elongated, by decay of the leaves; spreading around the taper woody root, of which they form the crown; and bearing tufts of slightly reflexed leaves, whose bordered footstalk, much shorter and broader than that of *S. Limonium*, expands, near its insertion, and clasps the stem. The lateral ribs of the leaves are nearly parallel, in one, and sometimes in two pairs, becoming indistinct within less than a third of the coarsely reticulated summit; the midrib of *S. Limonium*, and of *S. Gmelini*, a kindred species, will be found, by transmitted light, to be accompanied by diverging, alternate, flexuose veins.

The base of the panicle is rather flat, rarely equalling a fourth of its length. The branches are angular, or somewhat winged; and bear spikes of flowers less crowded, and consequently less frequently reflected, than those of *S. Limonium;* from which their calyx also differs by its deep membranous border, closed after flowering; and their petals by being emarginate, and of a less brilliant, though delicate, purple-blue.

From allied species, *S. binervosa* may be distinguished by the above specific characters, if reliance can be at all placed upon the descriptions of Willdenow, Desfontaines, and others: from *S. oleæfolia* of *Willd. Sp. Pl. v.* 1. *p.* 1525, by its spathulate leaves and rarely winged branches: from *S. cordata* of the same work, with which the Kentish plant was confounded, by the entire, though sometimes depressed, point of its leaves: from *S. spathulata* of Smith in *Rees's Cyclopædia*, figured in *Curtis's Bot. Mag. t.* 1617, by the pointless and awnless leaves and round branches of the latter: from *S. Willdenowiana* and *globularifolia* of Sprengel and Desfontaines, by its mucro situate beneath the point of the leaf: from *S. auriculæfolia* of Willdenow, and *S. bellidifolia* of Gouan, *Fl. Monsp. p.* 231, and *Flore Franç. v.* 3. *p.* 421, by its leaves and membranous-edged, blunt floral bracteæ; and lastly, by the same character, and especially by habit, from *S. reticulata.* Still however Dr. Hooker has referred our plant to *S. spathulata*, and Mr. D. Don regards it as *S. globularifolia.* Should either of these ideas eventually prove correct, the trivial name here proposed will necessarily be excluded.—G. E. S.

November 1st 1830

RUBUS carpinifolius.

Hornbeam-leaved Bramble.

ICOSANDRIA Polygynia.

GEN. CHAR. *Calyx* 5-cleft. *Petals* 5. *Berry* superior, of several single-seeded *grains*, placed upon a protuberant spongy *receptacle*.

SPEC. CHAR. Stem decumbent or arched, somewhat angular and furrowed, hairy, with numerous, deflexed, curved, uniform prickles. Leaves digitate, of 5 stalked, ovate, pointed, plicate leaflets; pale beneath. Panicle compact, hairy; its branches ascending, corymbose. Calyx spreading.

SYN. Rubus carpinifolius. *Weihe & Nees Rubi Germ.* 36. *t.* 13. *Borr. in Hook. Brit. Fl.* 245.
R. plicatus. *Sm. Engl. Fl. v.* 2. 401? excl. syn.

FROM Henfield, Sussex. Specimens gathered by Mr. Wilson in Cheshire, Lancashire, and North Wales, are in Dr. Hooker's herbarium; and the Shropshire plant described in *English Flora* as *R. plicatus*, is probably the same. Mr. Lindley has kindly communicated an authentic German specimen.

Although nearer in specific characters to *R. rhamnifolius*, *R. macrophyllus*, and *R. leucostachys*, this Bramble more resembles in habit some of the varieties of *R. Kœhleri*, from all of which it differs decidedly, however, by the total absence of acicular prickles and stalked glands on the stem. The stem is usually much stained with purple, and bears abun-

dance of spreading, somewhat fascicled, soft hairs, remains of which are generally left in the flowering state of the plant; and among them are to be found the minute glands which are perhaps universally present in this genus. A few setæ occur occasionally towards the ends of young shoots. The prickles are numerous, remarkably tipped with yellow; those on the stem confined to the angles, of moderate size, mostly deflexed and curved; those on the leaf-stalks and on the panicle more strongly hooked, except on the ultimate flower-stalks. Leaflets 5 on the stem, mostly 3 on the flowering branches; all on rather short stalks, dark dull green, sprinkled with hairs above; beneath more hairy and of a paler green, those towards the end of the shoots sometimes, and those in and immediately below the panicle usually, hoary or almost white. They are plaited at the lateral nerves, of a less coriaceous appearance than in *R. rhamnifolius*, their edges often somewhat deflexed. The panicles are variously branched, mostly compact; occasionally almost simple and raceme-like: the principal stalk is very hairy; the smaller branches, flower-stalks and calyx covered with dense whitish woolly pubescence, intermixed with longer hairs, inconspicuous glands, small straight prickles, and often a few setæ. The flowers are rather small, the calyx-leaves spreading, scarcely reflexed in any stage, their points rarely elongated; the petals and filaments usually dark pink. We find the berries but sparingly produced; the grains not very numerous, not large, loosely set, of a full black, shining.—W.B.

m.
f.

SALIX ferruginea.

Ferruginous Willow.

DIŒCIA Diandria.

GEN. CHAR. Male, *Cal.* a scale of an imbricated catkin, single-flowered. *Cor.* none. *Nect.* a gland or glands at the base of the stamens. *Stam.* 1—5 (or more). Female, *Cal.* and *Nect.* as in the male. *Cor.* none. *Caps.* of 1 cell and 2 valves. *Seeds* tufted.

SPEC. CHAR. Leaves thin, lanceolate, with wavy crenatures and small teeth; minutely hairy on both sides; paler beneath. Stipules small, half-ovate. Calyx-scales oblong-lanceolate. Germen silky, stalked. Style about as long as the oblong stigmas.

SYN. Salix ferruginea. *Salict. Woburn.* 255. *t.* 128. *Hook. Brit. Fl.* 424.

DRAWN from plants communicated by the late Mr. G. Anderson, who distinguished and named the species, which, according to him, is subject to considerable variations. He discovered it near Carlisle in 1809, and found it afterward in Fifeshire and other counties of Scotland, and by the Thames near Windsor, Reading, &c. The female plant has been observed also near Nuthurst, Sussex.

A shrub 12 feet or somewhat more in height, with spreading branches. Twigs yellowish or brownish-gray, minutely downy when young. Leaves of a thin substance, soft and flexible whilst young, when old more rigid; lowermost obovate, obtuse, or with a short point, nearly or quite entire; the rest lanceolate, acute, mostly waved and somewhat twisted, about 3 inches long and half an inch wide on strong shoots, much smaller on the lateral twigs; edges

slightly revolute, with wavy crenatures and very shallow notches, above which small glandular, and at length callous teeth are seated on the upper disk of the leaf at a little space from the margin; upper surface of a rather pale green, scarcely shining, obscurely reticulated with sunken veins, and sprinkled with appressed hairs so minute as to be almost microscopic on the older leaves; underside more densely hairy, yet paler green rather than gray except in very young leaves, in old leaves often rusty; its lateral nerves slender, not very prominent. Leafstalks short, slender, downy. Stipules slightly stalked, small, half-heart-shaped or half-ovate, pointed, toothed, often recurved. Catkins cylindrical, about an inch long, on a thickish stalk beset with a few small leaves which are very silky beneath. Calyx-scales silky, dark brown towards the point, acute, the uppermost more rounded. Nectary single, oblong, truncate. Stamens 2, bearded on the lower part. Germen overtopping the calyx-scale by about half whilst in flower, ovate-lanceolate, densely silky, on a silky stalk of about a third of its own length. Stigmas pale, oblong, mostly entire, but occasionally divided. The flowers appear before the leaves, about the beginning of April.

The newly expanded leaves of the male plant are beautifully tinged with brownish purple, which is nearly or in general quite wanting in the female. Their sides in that stage of growth are closely rolled back, as is usual in the group to which this species belongs.

This Salix considerably resembles *S. cinerea* and *S. oleifolia* of Smith, but seems still more nearly allied to *S. Smithiana*, (the *S. mollissima* of *Engl. Bot. t.* 1509,) and by it connected with the *Osier* tribe. That species, however, has the leaves much whiter and more silky beneath, long narrow stipules, (not half-heart-shaped, as they have sometimes been described,) and slender, deeply divided stigmas, longer in proportion to the style. The true *S. mollissima* of Ehrhart, which is not yet known to be British, is characterized by a sessile germen: its catkins are very silky, with pale brown obtuse scales; its leaves almost green beneath, but more silky than in *S. ferruginea*.—W.B.

2666.

1283*

K. Gedel.

November 1st 1830.

CAREX Vahlii.

Close-headed alpine Carex.

MONŒCIA Triandria.

GEN. CHAR. *Spikes* imbricated, dicœcious or androgynous. *Calyx* a single glume. *Barren flowers; Cor.* none. *Fertile flowers; Cor.* urceolate, of one piece, persistent and inclosing a nut. *Stigmas 2—3.*

SPEC. CHAR. Spikes 3—4, roundish or oblong, aggregated; the terminal one with barren flowers at its base. Stigmas 3. Fruit obovate, scabrous above with minute crystalline prickles, shortly beaked, longer than the ovate, obtuse calyx. Stem triangular, rough at the edges.

SYN. Carex Vahlii. *Schkuhr, Caric. t.* Gg. *no.* 94. *& App.* 46. *t.* Ppp. *no.* 154. *Willd. Sp. Pl. v.* 4. 252.
C. alpina. *Fl. Dan. t.* 403. *Wahl. Fl. Lapp.* 241. *Fl. Suec. p.* 606. *Spreng. Syst. Veg. v.* 3. 815.

EARLY in the month of August last (1830), Professor Graham made an excursion to the mountains of Bræmar, Cairngorm, and Clova, in which he was accompanied by a few botanical friends, and some of the most zealous of his students. In the course of this excursion the present interesting addition to the British Flora was discovered by Mr. Balfour and myself, growing on moist declivities among some precipitous rocks which surround a small loch about two miles above Loch Callader*. It is much to be regretted that the party had not sufficient time to examine the glens and corries of that district more carefully, as there is every reason to conclude many good things would have been found

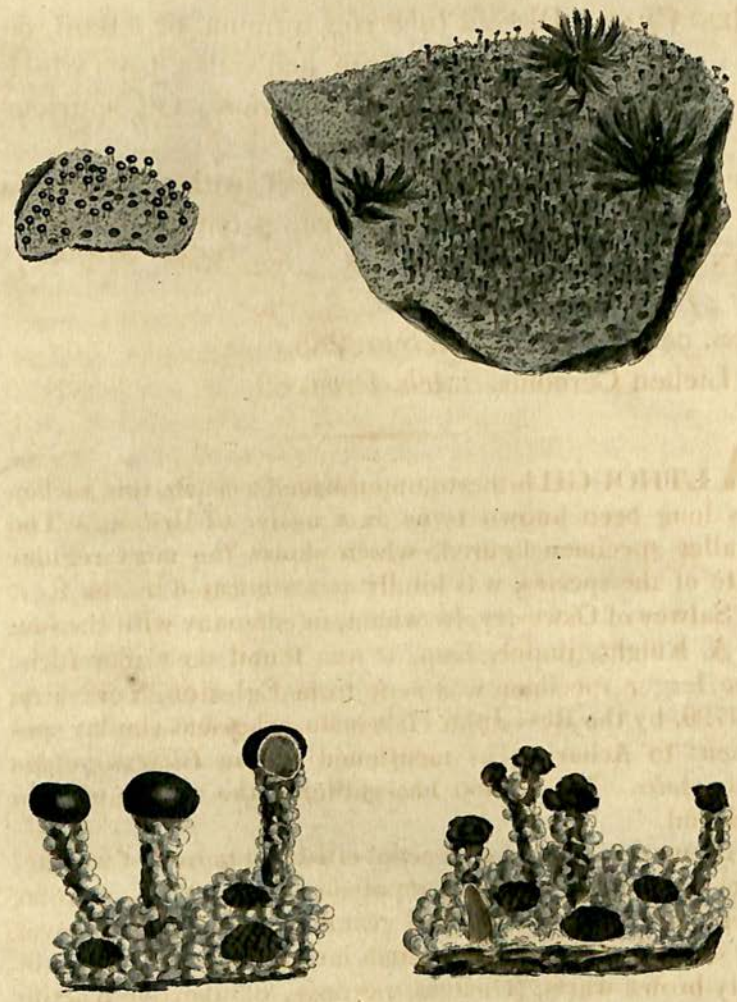
* Loch Callader is about six miles from Castleton in Bræmar.

to repay the search. The true *Saxifraga cæspitosa* was found upon Ben-na-bourd by Mr. Macnab; and on the same range of rocks which produced the present novelty, were gathered *Carex atrata*, *Juncus castaneus*, *Salix lanata**, *S. reticulata*, and other rare species, *Hieracium alpinum*, *Phleum alpinum*, *Veronica alpina*, *Serratula alpina*, &c.

Carex Vahlii grows in small tufts furnished with somewhat creeping roots. The stems are from six inches to a foot in height, straight, rigid, triangular and rough, especially towards the summit. Leaves rather short and soft, from a line to a line and a half in breadth, flattish, tapering to a very acute point, rough at the edges. Bractea generally rising a little above the spikes, narrow, acute, keeled, with hardly any sheath, rough at the edges and keel. Spikes 3—4, roundish or shortly oblong, collected into a head; the lowest one supported on a short stalk about two lines in length. The barren flowers occur generally at the base of the terminal spike, but are sometimes also produced at the apex. Calycine glumes of the fertile flowers dark brown or even almost black, broadly ovate, obtuse; those of the barren flowers paler, oblong, somewhat lanceolate. Fruit obovate, longer than the calyx, green or tawny, terminated by a short bifid beak: the angles of the fruit on its upper part are rough with crystalline prickles, and the beak is also rough, but the surface is not pubescent as described by authors, and as figured by Schkuhr.

Two varieties of this species, according to Wahlenberg, are found in Lapland; the one (his var. α.) shorter and more rigid, with a smooth stem, and reddish brown fruit; the other (his var. β. *inferalpina*) longer, more slender, with a rough stem, and oblong pale fruit; the terminal spike being also frequently composed of barren flowers. The Scottish specimens are in some respects intermediate; the fruit, in regard to form, agrees with α, but the stem is decidedly rough; the terminal spike, though mostly barren at the base only, is occasionally so at the apex also. One of these specimens too, has an additional fertile spike at some distance from the rest, as is represented in *Flora Danica*, and in one of the figures given by Schkuhr.—R. K. Greville, LL.D.

* Mr. D. Don assures us that his father was the first discoverer of this *Salix* in Britain, and that it was in Glen Callader he found it.—J. D. C. S.



Stereocaulon Cereolus.

November 1st 1830.

STEREOCAULON Cereolus.

Simple-stalked Stereocaulon.

CRYPTOGAMIA Lichenes.

GEN. CHAR. Discoid *tubercles* terminal or lateral, on firm, solid, simple or branched stalks, from which they are furnished with an evanescent spurious margin.

SPEC. CHAR. Stalks simple, erect, without powdery warts, rising from an uneven, granulated crust.

SYN. Stereocaulon Cereolus. *Ach. Meth.* 316. *t.* 7. *f.* 1. *Lich. Univ.* 582.
S. cereolinum. *Ach. Syn.* 285.
Lichen Cereolus. *Ach. Prod.* 89.

ALTHOUGH hitherto unpublished as such, this Lichen has long been known to us as a native of Britain. The smaller specimen figured, which shows the most regular state of the species, was kindly communicated by the Rev. T. Salwey of Oswestry, by whom, in company with the late T. A. Knight, junior, Esq., it was found on Cader Idris. The larger specimen was sent from Egleston, Yorkshire, in 1799, by the Rev. John Harriman, who sent similar specimens to Acharius, as mentioned in the *Lichenographia Universalis*. Mr. Cotton has gathered the species on Ben Lomond.

An uneven, loosely connected crust, composed of minute, grey or slightly cæsious, unpolished, tartareous, convex, irregularly lobed and rugged granules, spreads widely over the stone, intermixed with much larger, roundish, black or sooty-brown warts, (clusters, perhaps, of abortive fructification,) of a somewhat wax-like substance within, and with a convex minutely granulated surface. The perfect stalks are numerous, erect, rarely a quarter of an inch high, nearly cylindrical, sometimes thicker upwards, simple, or a little divided at the summit, usually much encrusted with granules

like those which form the base of the plant; their substance cartilaginous or horny, their hue, both internally, and superficially when any part of their surface is exposed, dark brown, occasionally blotched with red. Their apex is, in an early stage of the fructification, impressed with a minute dot, environed by a rounded margin, which, being of the same hue as the disk, although formed from the substance of the stalk, gives it the appearance of a small patellula: by degrees the disk spreads, obliterating the margin and surpassing in width the diameter of the stalk, and is in some states flat and irregularly circular, in others reflexed at the edges, very convex, and almost spherical. A section shows, under the black surface, a thin dark grey layer, encompassing the browner head of the stalk.

Wahlenberg, in his *Flora Lapponica*, united *Bœomyces*, *Cenomyce*, and *Stereocaulon* as one genus; a union which Acharius in his *Lichenographia Universalis* attributes to observations made "fugitivis tantum, ut aiunt, oculis." In the later *Flora Suecica* of Wahlenberg, we find *Stereocaulon* separated, and the other two genera still united. Yet, whilst the soft fungus-like stalk of the fructification sufficiently, perhaps, distinguishes the *Bœomyces* of the *Lichenographia*, the separation of *Stereocaulon* from *Cenomyce* seems less justifiable by any character that the fructification alone affords. The differences of the thallus indeed, which have suggested the generic appellations, are considerable; the stalks of *Cenomyce* being hollow, those of *Stereocaulon* firm and solid. That part in *S. Cereolus* differs not a little by its cartilaginous substance and simple form, from the much branched and internally fibrous stem of the well known *S. paschale;* yet the claim of the present Lichen to be regarded as a congener of that species, will scarcely be disputed.

Both *S. nanum* (as we believe it) and *S. condyloideum* of Acharius have been gathered in the North of England, the former by Mr. Harriman and Mr. Robertson, the latter by Mr. Thornhill; and we should gladly exhibit them at the same time with *S. Cereolus*, were we in possession of adequate specimens. *S. botryosum*, of which we have Scottish specimens, appears a dwarfish variety of *S. paschale;* and it is possible that Wahlenberg may have done well in uniting *S. nanum* to the same species.—W. B.

Jungermannia Woodsii

December 1st 1830.

JUNGERMANNIA Woodsii.

Mr. Woods' Jungermannia.

CRYPTOGAMIA Hepaticæ.

GEN. CHAR. Common *receptacle* of the fruit none. *Perianth* or *Calyx* monophyllous, tubular (rarely wanting). *Capsule* 4-valved, terminating a peduncle which is longer than the perianth.

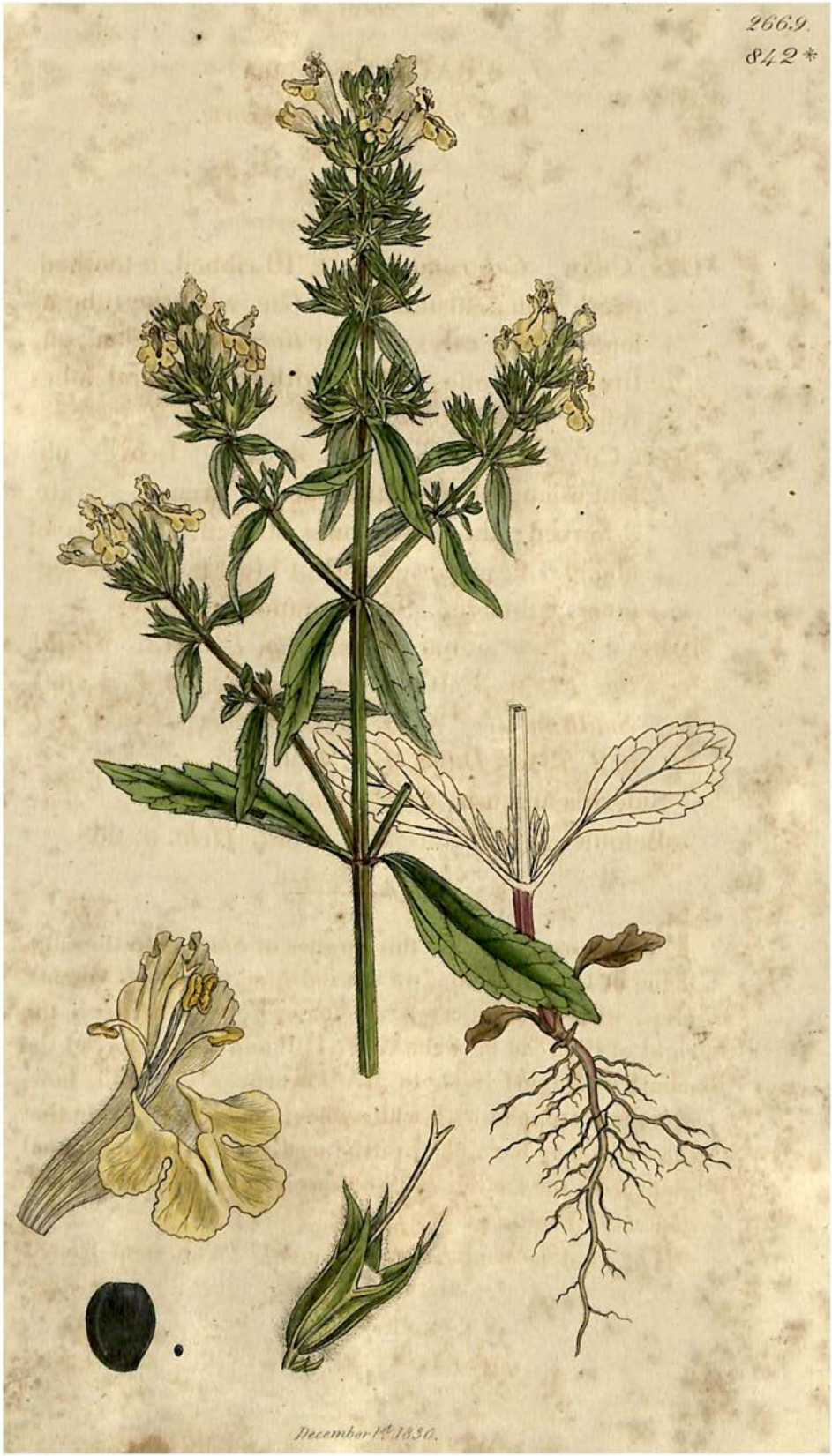
SPEC. CHAR. Stem procumbent, bi-tripinnate. Leaves very convex, unequally two-lobed; the superior lobes bipartite, spinuloso-dentate; the lower ones very minute, oblong, nearly entire. Stipules large, ovate, bipartite, spinuloso-dentate, with the base spurred on each side.

SYN. Jungermannia Woodsii. *Hook. Brit. Jung. t.* 66. *Hook. & Taylor, Musc. Brit. ed.* 2. 237.

THIS eminently beautiful species bears the name of one of our ablest British botanists, Joseph Woods, Esq., who was its first discoverer on the ascent of Mangerton from Cwm na Cappal, Ireland. Dr. Taylor subsequently gathered it upon the Devil's Punch Bowl, on the same mountain, and in very great abundance upon that of Brandon, whence we have been favoured with beautiful specimens by William Wilson, Esq. In no other country or place does it appear to have been found; and, unfortunately, in the situations just mentioned, it is always barren. The habit and structure of the foliage, however, will suffice to distinguish it from *J. ciliaris*, its nearest affinity, as well as from every other species.

The plant grows in large and rather densely tufted

patches. The stems are procumbent, from 4 to 6 inches long, flexuose, filiform, divided once or twice in a dichotomous manner, and then pinnated with horizontal acuminated branches. The leaves are rather closely placed, and imbricated over the upper surface of the stem, bifarious in their direction, roundish or subquadrate, very concave, loosely cellular, purplish brown, composed of two very unequal conduplicate lobes, of which the upper one is the largest, and divided, for about half its length, by an acute sinus, into two ovate segments, which are beset at their margins with variously sized, but generally large, spiniform teeth: the inferior lobe is exceedingly minute, and indeed resembles one of the spinules, only that it is broader: but it holds the place of the inferior lobe in the closely allied *J. ciliaris*. The stipules are very large, considerably broader than the stem, widely ovate, cleft into spinuloso-dentate segments, and at the base on each side there is a reflexed tooth or spur.—W. J. H.



December 1st 1830.

STACHYS annua.

Pale annual Woundwort.

DIDYNAMIA Gymnospermia.

GEN. CHAR. *Cal.* campanulate, 10-ribbed, 5-toothed, nearly equal, acuminate. *Cor.* with the tube as long as the calyx; upper *lip* mostly arched, entire; lower one 3-lobed, with the 2 lateral lobes reflexed. *Bentham.*

SPEC. CHAR. Annual, erect, downy. Leaves oblongo-lanceolate, rather acute, crenato-serrate, 3-nerved; the lower ones stalked. Whorls of about 6 flowers, spicate. Calyx hairy, its segments subulate. Seeds roundish, glossy.

SYN. Stachys annua. *Linn. Sp. Pl.* 813. *Willd. Sp. Pl. v.* 3. 105. *Jacq. Austr. v.* 4. *t.* 360. *Smith in Rees' Cycl. n.* 8. *Spreng. Syst. Veget. v.* 2. 734. *Duby, Bot. Gall.* 367.

Sideritis arvensis, &c. *Bauh. Pin.* 233.

Betonica foliis ovatis, &c. *Hall. Helv. n.* 263.

FOR the addition of this species of *Stachys* to the catalogue of British plants, we are indebted to Joseph Woods, Esq., who communicated specimens from a field on the right of the road between Gad's Hill and Rochester, in the month of August 1830, to Mr. Sowerby. The field, however, was cropped with white wheat, and it is possible that the seeds may have been introduced with the grain of that plant from the Continent; the species being certainly indigenous in France and Germany.

The root is small, fibrous, annual. The stem from a

span to a foot high, erect, 4-sided, downy, especially above, branched with opposite branches, and bearing opposite oblongo-lanceolate, slightly downy leaves, which are rather deeply dentato-serrate, acute, 3-nerved at the base; the lower ones tapering into a stalk, the upper ones sessile, narrower, and nearly entire. Flowers fragrant, pale sulphur-yellow, about six in a whorl, and forming a sort of interrupted spike at the extremity of the stem and branches. There are bracteæ or floral leaves at the base of the whorls. Calyx campanulate, shortly pedicellate, very hairy, 10-ribbed; its segments subulate and curved upwards. Tube of the corolla about as long as the calyx: upper lip large, entire, but crisped at the margin, and slightly convex; lower one 3-lobed, the lobes rounded and crenate; the middle one bifid. Seeds or akenia 4, obovate or nearly globose, glossy-black, smooth on the surface.—W. J. H.

J.E.Bowman, del.t

ELATINE Hydropiper.

Four-petaled Waterwort.

OCTANDRIA Tetragynia.

GEN. CHAR. *Calyx* 3—4-partite, persistent, inferior. *Petals* 3—4. *Stamens* 3, or 6, or 8. *Styles* 3 or 4, very short. *Capsule* 3—4-valved, 3—4-celled, many-seeded, the dissepiments alternate with the valves. *Seeds* cylindrical, curved, furrowed and transversely striated, attached to a central receptacle.

SPEC. CHAR. Flowers pedicellate or nearly sessile, 8-androus, calyx shorter than the petals, its segments ligulate, capsule roundish, slightly depressed, convex at the top, 4-celled, seeds bent almost double, chalaza operculiform.

α. flowers distinctly pedicellate.

SYN. Elatine Hydropiper. *Linn. Sp. Pl.* 527. (not *Eng. Bot.*) *Willd. Sp. Pl. v.* 2. 472 (α). *Schkuhr, Bot. Handb. t.* 109. (copied from Vaillant). *DeCand. Ic. Plant. t.* 43. *f.* 2. *Reichenb. Iconogr. Bot. cent.* 5. 8. *Spreng. Syst. Veget. v.* 2. 261. *DeCand. & Duby, Bot. Gall. v.* 1. 81.

Alsinastrum serpillifolium, flore albo tetrapetalo. *Vaill. Bot. Par. t.* 2. *f.* 2.

β. flowers nearly sessile (*Tab. nostr.*)

SYN. Elatine Hydropiper. *Œd. Fl. Dan. t.* 156. *Schkuhr, Bot. Handb. t.* 109. *b. Reichenb. Icon. Bot. cent.* 5. 8. (var. *Schkuhriana.*)

THE only species of *Elatine* hitherto known to be indigenous, has already appeared at *t.* 955 of this work as the *E. Hydropiper* of Linnæus. This is now ascertained by

Dr. Hooker (*Brit. Fl.*) to be the *E. hexandra* of DeCandolle, a fact of which Sir J. E. Smith was probably not aware when he published it in his *English Flora* under the name of *E. tripetala*. The true *E. Hydropiper* does not appear to have been observed in Britain till it was detected by the writer of this, in August last, on the S.E. side of Llyn Coron, near Abberffraw, Anglesey, forming matted tufts 4 to 6 inches wide, both on the sandy margin of the lake, and in the shallow water immediately contiguous. The flowers and stoloniferous stems were generally covered by the sand and mud, the petals being in that case white; and it would appear they are tinged with pink only when exposed to the *air* as well as the light. The accompanying drawings are from sketches taken in Anglesey by Mr. Wilson of Warrington and myself, from fresh specimens. *E. hexandra* was also found growing with it, but the two species are never intermixed in the same tuft.

In general habit and appearance, our plant approaches closely to *E. hexandra*, having a round creeping stem, internally divided by radiating septa into eight longitudinal cavities, and throwing out at each joint several white simple roots, accompanied by two, sometimes four erect opposite spathulate leaves, united in pairs. Each leaf has a central nerve, dilated at the summit, and occasionally furnished with lateral veins, with two membranous ovate toothed stipules at the base, one on each side of the stem. Flowers axillary, solitary, nearly sessile, alternate. Calyx-segments 4, nearly ligulate, obtuse, shorter than the petals and fruit. Petals 4, ovate, white or very pale red, closed over the stamens and germen, in which state the impregnation in both species is effected under water, as in *Subularia aquatica*, the anthers lying in close contact with the stigmas. Stamens 8, fixed opposite to the petals and calycine segments; filaments flattened, somewhat dilated at the base, anthers 2-celled. Styles none; stigmas 4, very minute, persistent, forming the extreme points of the valves of the capsule. Capsules 4-valved and 4-celled, roundish, with slight depressions at the junction of the valves, convex at the summit, becoming at length obscurely angular by the swelling of the seeds: septa alternate with the valves, adhering to a central axis. Seeds about 4 in each cell, pendulously attached to placentæ which crown the inter-

section of the dissepiments, curved almost double; embryo of the same shape, dicotyledonous. The base of the seeds is strongly umbonated, exactly resembling the operculum of a moss: this is the *chalaza* of Gærtner; and the semi-transparent membrane occupying the space between the inner sides of the bend, like a ligature to retain the seed in its curved form, is the *raphis*, or bundle of vessels connected with the chalaza. The outer coat is furrowed and transversely striated, very elegant under the microscope.

The strongly hooked shape of the seeds, and their attachment at the *top* of the dissepiments, are both very important characters, sufficient, independently of others, to establish the specific difference of our plant from *E. hexandra*, whose seeds are nearly straight, and have an upward direction from the point of their attachment at the *base* of the central axis. Dr. Hooker, who has kindly furnished the characters and synonymes, fully concurs in this opinion; and remarks, "Cambassèdes, in the *Mém. du Mus. d'Hist. Nat. 9me année*, has, with much judgement, raised *Elatine* and two allied genera to the rank of an order, *Elatineæ*. That author seems to consider *Elatine* to be exclusively an European genus. I have just been describing one from the East Indies."

I subjoin an amended specific character of *E. hexandra*, as drawn up by my acute and indefatigable friend Wilson; and I may add, that I have examined many specimens, both from the original station near Shrewsbury and from Anglesey, which have invariably 3 petals and sepals, 6 stamens, and a 3-valved capsule.

E. hexandra. Leaves opposite, spathulate. Flowers alternate, pedicellate, erect, hexandrous, tripetalous. Calyx longer than the fruit, segments spreading, orbicular. Petals obovate. Capsules turbinate, concave at the summit, 3-celled. Seeds nearly straight, about 12 in each cell, (I find about 8.—J. E. B.) ascending, the end where they are attached to the receptacle being the lowest.

Syn. Elatine Hydropiper. *Eng. Bot.* 955. *Sm. Fl. Brit.* 1396.

E. hexandra. *DeCand. Pl. Gall. Rar.* 14. *t.* 43. *f.* 1. *Reichenb. Icon. cent.* 5. 8. *t.* 413.

E. tripetala. *Sm. Eng. Fl. v.* 2. 243.

Alsinastrum serpillifolium; flore roseo, tripetalo. *Vaill. Bot. Par.* 5. *t.* 2. *f.* 1.

Fig. 1. represents the seed of *E. Hydropiper*, and Fig. 2. that of *E. hexandra*.

J. E. Bowman.

Mr. Borrer finds *E. hexandra* by the mill-dam at Tilgate, near Crawley, Sussex, and observes that the flowers there are *usually* on so short stalks as to appear sessile until closely examined.—J. D. C. S.

Hypnum polymorphum.

December 1st 1830.

HYPNUM polymorphum.

Polymorphous Hypnum.

CRYPTOGAMIA Musci.

GEN. CHAR. *Fruitstalks* lateral. *Peristome* double: the *exterior* of 16 teeth; the *interior* of a membrane cut into 16 equal segments, with filiform processes frequently placed between them. *Calyptra* dimidiate.

SPEC. CHAR. Leaves loosely set, squarrose, cordate, much acuminated, entire; their nerve disappearing above the middle. Capsule oblongo-ovate, curved, cernuous. Lid conical, acute.

SYN. Hypnum polymorphum. *Hedw. Sp. Musc. t.* 66. (nerve omitted). *Hook. & Taylor, Musc. Brit. ed.* 2. 179. *t.* 26.

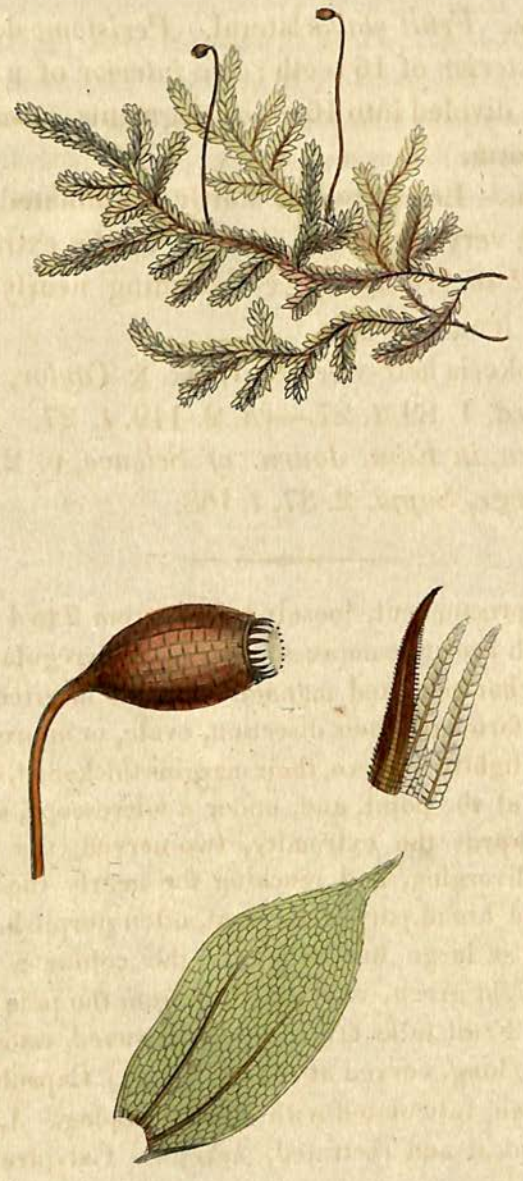
Hypnum chrysophyllum. *Brid. Musc. v.* 2. *t.* 2. *f.* 2. *Funch, Deutschl. Moose. t.* 4. *f.* 58. *Mong. & Nestl. n.* 731.

IT will be seen from what we have said in our *Muscologia Britannica*, that the present species is a very ambiguous one, and so closely allied to dwarf specimens of *H. stellatum*, that Mr. Arnott considers it to be the same. It differs, however, in the presence of a nerve: and, having compared our British specimens with authentic ones from Hedwig in Mr. Turner's Herbarium, we are able to speak with certainty as to their being the *H. polymorphum* of that author.

Stems loosely tufted, slender, branched in a more or less pinnated manner. Leaves patent and squarrose, from a broad and cordate base, gradually tapering into a much

acuminated and subdiaphanous point, the margin perfectly entire and plane, of delicate and membranaceous texture, with fine and oblong, closely placed reticulations: the nerve reaches more than half-way up the leaf, where it disappears. Fruitstalk erect, about an inch or an inch and a half long, smooth. Capsule oblong, somewhat arched and inclined. Lid conical and acute.

Hypnum polymorphum has been found in Ireland, by Dr. Taylor; near Edinburgh, by Dr. Greville; upon the chalky downs of Sussex, by Mr. Borrer, but always barren. The specimen in fruit here figured was communicated by N. J. Winch, Esq., from, we believe, the vicinity of Newcastle; and the other, by Mr. Borrer.—W. J. H.



Hookeria lætè virens.

December 1st 1830.

HOOKERIA læte-virens.

Deep-green Hookeria.

CRYPTOGAMIA Musci.

GEN. CHAR. *Fruit-stalks* lateral. *Peristome* double: the *exterior* of 16 teeth; the *interior* of a membrane divided into 16 entire segments. *Calyptra* mitriform.

SPEC. CHAR. Leaves ovate, shortly acuminated, margined, very obscurely serrated at the extremity, with 2 diverging nerves reaching nearly their whole length.

SYN. Hookeria læte-virens. *Hook. & Taylor, Musc. Brit. ed.* 1. 89. *t.* 27.—*ed.* 2. 149. *t.* 27. *Hook. & Grev. in Edin. Journ. of Science, v.* 2. 230. *Schwægr. Suppl.* 2. 37. *t.* 163.

STEMS procumbent, loosely tufted, from 2 to 4 inches long, reddish brown, compressed, branched irregularly but in a somewhat pinnated manner. Leaves inserted on 4 sides, but bifarious in their direction, ovate, or approaching to obovate, slightly concave, their margins thickened, shortly acuminated at the point, and, under a microscope, slightly serrated towards the extremity, two-nerved, the nerves somewhat diverging, and reaching for nearly the whole length of the broad part of the leaf, often purplish. The reticulation is large but delicate: the colour a rather deep and bright green, very different from the pale hue of *H. lucens*. Fruitstalks erect, flexuose, waved, smooth, an inch or more long, curved at the extremity. Capsule oval, reddish brown, reticulated with cells, drooping. Lid also cellular, conical and rostrated, straight. Calyptra mitri-

form, white, delicate, faintly reticulated. Outer peristome of 16, equal, dark red teeth: inner, of a membrane cut into 16, equal, rather broad, cilia.

The greater number of species of the genus *Hookeria* are tropical, or inhabit the warmer parts of the East as well as the West Indies, Africa, and the islands of the South Seas. In Europe we have only two species; the well known *H. lucens*, which extends very far north, and the subject of the present description, of which, however, only one station is known, namely in the South of Ireland, in a wood in the vicinity of Cork, where it grows near a spring whose temperature is considerably higher than that of the surrounding atmosphere. Mr. Drummond was its discoverer.

The specimens here figured were communicated by N. J. Winch, Esq., having been gathered by W. Wilson, Esq., in his late botanical excursion to the South of Ireland.

W. J. H.

January 1st 1831.

VERONICA hirsuta.

Small hairy Speedwell.

DIANDRIA Monogynia.

GEN. CHAR. *Cor.* 4-cleft, rotate, lower segment narrower. *Capsule* 2-celled.

SPEC. CHAR. Racemes slender, spiked. Leaves ovato-lanceolate, slightly serrated, acute, bearing a few scattered hairs. Stem procumbent, hairy. Capsule broadly obovate, entire.

SYN. Veronica hirsuta. *Hopk. Fl. Glott.* 9. *Hook. Scot.* 6. *Sm. Engl. Fl. v.* 1. 22. *Hook. Brit. Fl.* 5.

Veronica setigera. *D. Don, Descr. of Rare Plants of Scotl.* 4. *Spreng. Syst. Veget. v.* 1. 73.

THE roots of this plant are long and branched, fibrous, thrown out from short procumbent somewhat shrubby perennial stems, which scarcely exceed 2 inches in length, and are glabrous below, downy above. Leaves ovato-lanceolate, or sometimes wholly lanceolate, opposite, spreading, entire or slightly serrated, bearing a few scattered hairs. Racemes long in proportion to the diminutive size of the plant, many-flowered, erect, leafy below, and having linear bracteas at the base of the pedicels, all of which are hairy. Calyx cut into 4 deep and unequal, linear, hairy segments. Corolla rotate, pale purplish blue, with a deeper line down the middle, the segments oblongo-obovate, obtuse. Filaments and anthers purple; the latter cordate and apparently imperfect. Germen minute, clothed with hairs, which are often glandular. Style longer than the stamens: stigma capitate. Capsule rarely perfected,

broadly obovate, abrupt, not notched at the top; the long style for a time remaining attached to the summit.

The only wild station for this plant is in the district of Carrick, Ayrshire, where it was many years ago detected by Mr. James Smith of Monkwood Nursery, Ayr. When cultivated in the garden it retains all its characters, its humble growth, narrow leaves and floral segments, and the long style, together with the abrupt germen and capsule. Still, in the general appearance of the plant, there are so many points in common with *V. officinalis*, that I am doubtful if it ought not rather to be considered as a dwarf and imperfect state of that plant, than ranked as a species. The flowers seldom produce fruit, and the capsules that are seen do not appear to me to have arrived at a state of perfection.

We have had recourse, for our figure, to a specimen from the garden of Mr. Wm. Pamplin, jun., since we could hardly flatter ourselves with the expectation of being able to procure the plant recent from its wild station.—W. J. H.

ALTHÆA hirsuta.

Hairy Althæa, or *Marsh Mallow.*

MONADELPHIA Polyandria.

GEN. CHAR. *Styles* numerous. *Cal.* double; *ext.* of 6—9 leaves. *Capsules* numerous, circularly arranged, 1-seeded.

SPEC. CHAR. Leaves cordate, rough with hairs; lower ones obtusely, upper ones acutely lobed and toothed. Stem hispid. Peduncles single-flowered, longer than the leaves.

SYN. Althæa hirsuta. *Linn. Sp. Pl.* 966. *Cav. Diss. v. 2. t. 29. f. 1. Willd. Sp. Pl. v. 3. 772. Turn. & Dillw. Bot. Guide, v. 1. 352. Spreng. Syst. Veget. v. 3.* 108. *Hensl. Cat. Brit. Pl.* 5. *Hook. Brit. Fl.* 315.

ALTHÆA hirsuta, although mentioned as a native of fields near Cobham in Kent, upon the authority of Mr. Jacob Rayer, in Turner and Dillwyn's "Botanist's Guide," has yet not found a place in the Floras of Sir J. E. Smith. But the Rev. Professor Henslow, finding the plant still to be abundant in the same station, namely, between Cobham and Cuxton, Kent, very properly introduced it into his useful "Catalogue of British Plants." Our specimens here figured were found on the border of a wood in the place just mentioned, by Joseph Woods, Esq.

Root small, subfusiform, annual; sending forth from its upper part, or neck, several rounded, spreading or ascending, mostly simple stems, from 6 to 8 inches to a foot in length, clothed with numerous, long, spreading hairs or bristles. Leaves remote, cordate, hairy, especially on the

underside and the margins; the lower ones on long footstalks, 5-lobed, with the lobes very obtuse and crenate; the upper ones gradually smaller and sessile, 5—3-partite, with lanceolate, inciso-serrate segments. Stipules ovato-lanceolate, entire, hispid. Peduncles very hispid, longer than the leaves or bracteas at their base, single-flowered. Exterior calyx of 9 spreading, interior of 5 lanceolate, much acuminated, very hispid leaves, often tinged with purple. Corolla of 5, obcordate, purple-lilac petals, combined by their claws; in drying changing to dull blue. Column of filaments elongated. Styles several, filiform, hairy, longer than the stamens. Germens circularly arranged around the base of the style.

Almost the whole plant, except the corolla, when viewed under a microscope, is seen to be clothed with minute stellated pubescence, amongst the spreading and more rigid bristles.—W. J. H.

ORCHIS militaris.

Military Orchis.

GYNANDRIA Monandria.

GEN. CHAR. *Nectary* with a *spur* behind.

SPEC. CHAR. Lip of the nectary 5-lobed, with raised, rough, dark points; two middle lobes dilated, rounded. Spur obtuse, not half the length of the germen. Calyx converging, acuminate.

SYN. O. militaris. *Linn. Sp. Pl.* 1333. *Jacq. Ic. Rar. v.* 4. *t.* 598. *Bicheno in Tr. of L. Soc. v.* 12. 31. *Smith Engl. Fl. v.* 4. 14. *Hook. Brit. Fl.* 371.

O. militaris majoris varietas. *Vaill. Par. t.* 31. *f.* 21.

O. galea et alis fere cinereis. *Raii Syn.* 378.

O. oreades, trunco pallido, brachiis et cruribus saturatè rubescentibus. *Merr. Pin.* 85.

THE annexed figure of this very elegant species is the first that has appeared in any English work, and cannot fail to be gratifying to the botanist. With the aid of the very satisfactory plate of *O. tephrosanthos*, in *Hook. Fl. Lond. t.* 82, he will be enabled at once to identify these two species. The present is intermediate in the size of the whole plant, and in the flowers, between *O. fusca* and *O. tephrosanthos*, with which the elder botanists associated it. The flowers are of a more slender and elongated form than in *O. fusca*, yet partaking more of the dark hair-like blotches which so singularly mark the nectary of that plant. The 4 lobes, representing the arms and legs of a man, are not equal as in *O. tephrosanthos*, the two upper being longer and narrower in proportion than the two lower, while the intermediate lobe is not so broad as in *O. fusca*, nor yet a

point as in *O. tephrosanthos*. In drying, all three give out the peculiar odour of *Anthoxanthum odoratum*.

The figure and description in *Engl. Bot.* 1873, is that of *O. tephrosanthos*, but the lobes of the nectary are represented as too dilated. I have gathered specimens of the present species at Streatley, Berks; at Pentley Hangings, Stoken Church, where it was found by Dr. Williams, *Prof. Bot. Ox.*; and at the edge of the woods between Wycombe and Marlow. Mr. Woods found it last season between Henley and Fawley, and between High Wycombe and Hitchendon; and the figure here given is from a plant gathered at the last station.—J. E. Bicheno.

Gymnostomum conicum.

GYMNOSTOMUM conicum.

Conical-lidded Gymnostomum.

CRYPTOGAMIA Musci.

GEN. CHAR. *Fruit-stalk* terminal. Mouth of the *capsulè* naked, or, at most, in an early stage, closed with a more or less completely formed horizontal membrane. *Calyptra* dimidiate.

SPEC. CHAR. Stems very short, simple. Leaves oblongo-ovate, apiculate, the margins reflexed. Capsule more or less ovate; lid conical.

SYN. *α.* Capsule ovate. *Tab. nostr. fig.* 1.

Gymnostomum conicum. *Schwægr. Suppl. v.* 1. 26. *t.* 9. *Brid. Meth.* 13. *Nees & Hornsch. Bryol. Germ. v.* 1. 127. *t.* 9. *f.* 4. *Hook. & Taylor, Musc. Brit. ed.* 2. 23.

β. capsule turbinate.

Gymnostomum minutulum. *Schwægr. Suppl. v.* 1. 25. *t.* 9. *Brid. Meth.* 12. *Funck, Deutschl. Moose, t.* 4. *f.* 6. *Nees & Hornsch. Bryol. Germ. v.* 1. 123. *t.* 9. *f.* 2.

THIS minute plant grows in scattered patches. Stem scarcely any. Leaves springing, as it were, from the summit of the little tufted annual fibrous root, oblongo-ovate, patent, purplish green, quite entire, the margins recurved, the midrib strong and running out into an apiculus at the point. Fruit-stalk solitary, about twice the length of the leaves, erect, slightly flexuose. Capsule ovate, or, as in the var. *β.*, approaching to turbinate, reddish brown, obscurely striated, not furrowed. Lid exactly conical, whence the name of the species.

Care must be taken not to confound this species with *Weissia Starkeana*, and *Phascum rectum*, both of which it resembles in size and foliage and in place of growth. As a British plant it was first discovered by Mr. Drummond near Cork, and afterwards by J. T. Mackay, Esq. Mr. Borrer, who finds it not uncommon in different parts of Sussex, chiefly in corn-fields, sent these specimens in September, 1829. Its minuteness has probably caused it to be overlooked in other places.—W. J. H.

A figure of *Gymnostomum ovatum*, β. is added to this plate (fig. 2.) for the further illustration of that species: the specimens drawn were found by Mr. Eagle at Thetford in 1807, growing mixed with the typical variety.—J.D.C.S.

Jungermannia laxifolia.

January 1st 1831.

JUNGERMANNIA laxifolia.

Lax-leaved Jungermannia.

CRYPTOGAMIA Hepaticæ.

GEN. CHAR. Common *receptacle* of the fruit none. *Perianth* or *Calyx* monophyllous, tubular (rarely wanting). *Capsule* 4-valved, terminating a peduncle which is longer than the perianth.

SPEC. CHAR. Stem erect, nearly simple, filiform. Leaves remote, quadrifarious, erecto-patent, ovate, subcarinate, acutely bifid (those of the perichætium similar). Fruit terminal. Calyx oblong, somewhat plaited; the mouth contracted, toothed.

SYN. Jungermannia laxifolia. *Hook. Brit. Jung. t.* 59. *Hook. & Taylor, Musc. Brit. ed.* 2. 227.

STEMS growing in small but densely matted erect tufts, throwing out a few roots from the base, simple or slightly branched, and principally by innovations, of a delicate and by no means rigid texture and pale colour. Leaves of a soft and flaccid nature, pale green, erecto-patent, rather remote, smaller below, quadrifariously* inserted, ovate, generally slightly carinated, cleft for about one-third of their length, by an acute sinus, into 2, equal, rather sharp, but altogether entire segments: the reticulation is large and forms oblong cellules. The perichætial leaves do not differ from the rest. The calyx is terminal, oblong, at the

* At least apparently so; for it is difficult in such minute plants to trace their exact insertion: perhaps one row of these leaves may be more properly considered stipules, and that there are in reality but three rows.

mouth somewhat plaited and toothed. The capsule exactly spherical, opening into 4 equal valves.

For the discovery of this *Jungermannia* we are indebted to the late Miss Hutchins of Bantry, who found it in a mountain rivulet near that place. Dr. Taylor likewise gathered it in a stream upon Castle-Kelly Mountain, county of Wicklow; and these are all the stations that are at present known for it. The capsules are perfected in April, and calyces are found during most of the summer months.

As a species *J. lanifolia* will rank next to *J. julacea*, from which it differs in its paler colour, far softer texture, larger cellules, and different perichætial leaves.—W. J. H.

Jungermannia hyalina

February 1st 1817

JUNGERMANNIA hyalina.

Diaphanous Jungermannia.

CRYPTOGAMIA Hepaticæ.

GEN. CHAR. Common *receptacle* of the fruit none. *Perianth* or *Calyx* monophyllous, tubular (rarely wanting). *Capsule* 4-valved, terminating a peduncle which is longer than the perianth.

SPEC. CHAR. Stem ascending, flexuose, simple or dichotomous. Leaves roundish, slightly undulate. Fruit terminal. Calyx oblong, angled, half immersed; the mouth contracted, 4-toothed.

SYN. Jungermannia hyalina. *Lyell, MSS. Hook. Brit. Jung. t.* 63. *Hook. & Taylor, Musc. Brit. ed.* 2. 229.

STEMS forming lax tufts, ascending, an inch or more in length, simple or branched with innovations. Leaves bifariously inserted, spreading, or sometimes secund, of a glossy and semipellucid green, roundish, entire or retuse, waved, of a thin texture, with rounded cellules, those of the margin being the largest. Perichætial leaves similar to the rest, but broader upwards. Calyx terminal (but, from innovations, often appearing lateral, and even bearing two calyces at the same time), oblong, often not more than half exserted beyond the perichætial leaves, plaited and angled, the mouth contracted and 4-toothed. Fruit-stalk about twice or thrice as long as the calyx. Capsule ovato-rotundate, of a deep brown colour.

J. hyalina is a species for the discovery and for the distinguishing characters of which we are indebted to Charles Lyell, Esq., who first found it in boggy places in the neigh-

bourhood of his beautiful residence of Bartley, New Forest, Hants; and, subsequently, among rocks, above Stock-gill Force, Ambleside. Dr. Taylor has detected it near Dublin, and Mr. W. Wilson and Mr. Bowman in other situations in England:—so that it will probably prove to be not uncommon.

It is well distinguished by the glossy deep green, and subdiaphanous foliage, which induced its estimable discoverer to give it the name of *hyalina*.—W. J. H.

Jungermannia orcadensis.

February 1st 1821

JUNGERMANNIA orcadensis.

Orcadian Jungermannia.

CRYPTOGAMIA Hepaticæ.

GEN. CHAR. Common *receptacle* of the fruit none. *Perianth* or *Calyx* monophyllous, tubular (rarely wanting). *Capsule* 4-valved, terminating a peduncle which is longer than the perianth.

SPEC. CHAR. Stem erect, nearly simple, leaves closely imbricated, erect or patent, cordato-ovate, the margins recurved; the extremity emarginate. Stipules none.

SYN. Jungermannia orcadensis. *Hook. Brit. Jung. t.* 71. *Fl. Scot. P.* II. 113. *Hook. & Taylor, Musc. Brit. ed.* 2. 230. *Spreng. Syst. Veget. v.* 4. 229.

J. ORCADENSIS, as its name is intended to commemorate, was first found by Mr. Borrer and myself, upon the Wart Hill of Hoy, in the Orkneys; but subsequently Mr. Lyell has met with it at Catlaw, Kinnordy, Scotland, and at Ambleside in Cumberland; and Dr. Taylor on Brandon Mountain, Ireland. I have, indeed, seen it not unfrequently on various mountains in Scotland; never in abundance, but scattered in loose straggling tufts, or drawn up singly among Mosses, especially *Trichostoma*.

Roots, consisting of small pellucid fibres, are sent out from the underside of the stems, by which they are slightly attached to neighbouring substances. Stems usually erect, and simple, or slightly branched with innovations, 2 or 3 inches long, flexuose, destitute of stipules. Leaves generally closely placed, bifariously inserted and obliquely spreading, or, as is frequently the case, pointing to one

side, broadly ovate, pale or yellowish green, the margins recurved, the base semiamplexicaul and somewhat decurrent, the extremity furnished with a rather deep and obtuse notch. The texture is compactly cellular.

The species is not confined to the British Islands. I have met with it in Switzerland and Savoy, but no where in fructification. Sprengel, too, speaks of it as having been found in Moravia. Our specimens were obligingly sent to us by Mr. Wm. Wilson, who gathered them on Brandon Mountain, where they were growing along with *J. Woodsii*.—W. J. H.

JUNCUS cœnosus.

Mud Rush.

HEXANDRIA Monogynia.

GEN. CHAR. *Perianth* 6-leaved, glumaceous. *Stigmas* 3. *Capsule* 3-celled, 3-valved, many-seeded.

SPEC. CHAR. Stem simple, leafy. Leaves linear, channelled. Panicle cymose, terminal, few-flowered, longer than the bractea. Capsule obovate, of the length of the rather obtuse calyx.

SYN. J. cœnosus. *Bicheno in Tr. of L. Soc. v.* 12. 309. *Smith Engl. Fl. v.* 2. 166.

J. bottnicus. *Wahl. Fl. Lap.* 82. *t.* 5?

J. bulbosus β. *Hook. Fl. Scot.* 107. *Wahl. Fl. Suec.* 215?

J. compressus β. *Hook. Brit. Fl.* 163.

J. bulbosus. *Fl. Dan.* 431. *Ehrh. Calam.* 18.

ALTHOUGH this species is not capable of being well defined, and doubts may still be entertained whether it be not a variety of *J. compressus* (*J. bulbosus*, Linn.), yet, as it is acknowledged by many botanists, and has been published as distinct by several, we have ventured to give it a place in the *Supplement to Engl. Bot.* It is a maritime species, found abundantly in muddy places over which the tide occasionally flows, and differs from *J. compressus* in the darker colour of the whole plant, and especially in the more linear and wiry nature of the leaves. The panicle is more rigid and less divided, and usually overtops the bractea. The calyx leaves are all oblong, nearly equal, and of a dark chocolate brown. Capsule of the length of the calyx, blunt, dark shining cho-

colate coloured, while that of *J. compressus* is more spherical and lighter coloured.

I quote the synonyms of Wahlenburg with hesitation, as the capsule of his plant is described and figured as more acuminate than ours, while it exceeds the calyx in a greater degree; and indeed, I suspect, it represents another appearance, of the never-ending variations of the species of this genus. Virgil's epithet of "limosus juncus" is peculiarly applicable to our present plant.—J. E. B.

PAPAVER nudicaule.

Naked-stalked yellow Poppy.

POLYANDRIA Monogynia.

GEN. CHAR. *Cal.* of 2, caducous leaves. *Pet.* 4. *Stigma* sessile, radiated. *Caps.* superior; the *Seeds* on receptacles forming incomplete dissepiments, escaping by pores beneath the permanent stigma.

SPEC. CHAR. Capsule hispid, obovate, 4—6-ribbed. Scapes single-flowered. Leaves pinnatifid, their lobes toothed or cut, acute.

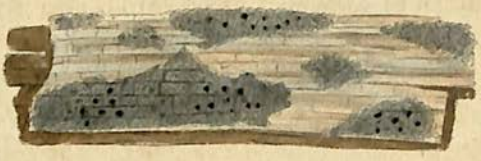
SYN. Papaver nudicaule. *Linn. Sp. Pl.* 725. *Œd. Fl. Dan. t.* 41. *Hook. in Fl. Lond. N. S.* 213. *Br. Fl.* 255.

THIS is eminently a Northern plant, abounding in the Arctic regions, and adorning the waste and desert shores with its beautiful yellow blossoms. Professor Giesecké, of Dublin, who had become familiar with the plant during his long visit to Greenland, had the good fortune to discover it growing singly among rocks and glens in the hills at Achilhead, in the north-west of Ireland. From the dried specimen which he had the kindness to communicate to us from the native station, our present figure is made.

It is perennial, and sends down into the soil a long woody tap-root, which frequently branches near the crown. The leaves are all radiant, stalked, pinnatifid, the segments few, lanceolate, acute, entire, or sometimes laciniated. The leaves and all the rest of the plant, except the corolla and stamens, are clothed with tawny hairs.

Calyx of two oblong, concave, caducous leaves. Petals roundish, pale sulphur-yellow, waved and very delicate. Stamens numerous. Germen oval, or a little broader upwards, hispid, crowned with the few-rayed stigma. Capsule obovate, marked with as many ribs as there are rays (4 to 6) to the stigma, and opening by orifices beneath the stigma and between its rays.

It flowers in July.—W. J. H.



Lecidea aruginosa?

LECIDEA æruginosa.

Dark-green powdery Lecidea.

CRYPTOGAMIA Lichenes.

GEN. CHAR. *Patellulæ* sessile or more or less immersed; with a margin of a substance different from the thallus.

SPEC. CHAR. Crust indeterminate, granulose, greenish gray, at length covered with æruginose powder. Patellulæ superficial, small, dull-black, brownish, or reddish; disk flat; margin elevated, somewhat flexuose.

COMMON in Sussex on decaying rails, but rarely producing patellulæ.

The thallus forms irregular and often wide patches, and consists of an obscure cyanescent film, with numerous granulations, so small as to be hardly distinguishable by the naked eye, arising from it, and more or less uniformly covering it. These are of irregular figure, at first smooth, of a pale, dull, grayish green when wet, and gray when dry, but soon burst, and pour forth abundance of very minute, dark verdigris-green, powdery particles, which form, together with the granules from which they proceed, a very uneven crust of inconsiderable thickness, white within, except a variable superficial layer of green. In barren specimens this powder is not unfrequently collected into roundish clusters, looking not unlike the fructification of a *Variolaria* or *Spiloma*. The patellulæ are generally numerous when they occur at all, are scattered, superficial, about the size of poppy-seed, unpolished, black, with a brownish or sometimes greenish tinge when dry, varying when wet from black to reddish

brown, and occasionally to a dull flesh-colour. Their margin is elevated, thickish, uneven, flexuose, but disappears on the application of moisture by the swelling of the disk, which, when dry, is flat and considerably depressed, thin, and of nearly the same hue internally as superficially.

In the structure of the thallus this Lichen differs but little from *L. scabrosa*, *t.* 1878, which, when growing on a compact substance, is found to begin in the same manner with a film and minute granulations: but the powder which soon covers the surface is, in that species, of a paler and more yellow hue, and the structure of its patellulæ is different. *L. æruginosa* is more nearly allied, perhaps, to *L. quadricolor*, *t.* 1158. Indeed it must be admitted that these two recede more in general appearance than in any essential character; yet it would scarcely be justifiable to regard them as but one species. In *L. æruginosa* the granulations of the thallus are smaller, more crowded and confluent, and of a greener hue, and the powder they produce is much more copious and of a dark verdigris-green, whilst that in *L. quadricolor* is not much darker than the granules. The patellulæ also are smaller in *L. æruginosa*, their margin, perhaps, more elevated, and their colour not altogether so variable. From another nearly allied species, *L. Lightfootii*, *t.* 1451, it differs in most of these and in some additional particulars.—W. B.

907*

March 1st 1831.

LEPIDIUM Draba.

Whitlow Pepper-wort.

TETRADYNAMIA Siliculosa.

GEN. CHAR. *Pouch* with the cells 1-seeded; the *valves* keeled. *Petals* equal. *Cotyledons* incumbent, rarely accumbent. *Br.*

SPEC. CHAR. Leaves amplexicaul, broadly oblong or lanceolate, entire or toothed. Pouch cordate, entire at the apex, crowned with a style about its own length. *Br.*

SYN. Lepidium Draba. "*Linn. Sp. Pl. ed.* 1. 645." *Br. in Hort. Kew. ed.* 2. *v.* 4. 86. *Decand. Syst. v.* 2. 529. *Prodr. v.* 1. 203. *Hook. Br. Fl.* 297.
Cochlearia Draba. *Linn. Sp. Pl.* 904. *Jacq. Fl. Austr. t.* 315.

WE possess specimens of this plant, gathered many years ago, near Swansea, by Mr. James Turner; and last year, 1829, the Rev. M. J. Berkeley sent us others from St. Peter's and from Ramsgate, Kent: at the former place "it was spread over the greater part of a clover-field; in the latter it was growing on the side of a road, and abundantly in some waste ground on the other side of the hedge." With these claims to be considered a native, we have ventured to introduce it into the British Flora: but it is one of those plants we are rather disposed to consider naturalized strangers, than original natives of the country, and it has probably been introduced with agricultural seeds from the Continent, being scarcely deserving of cultivation in the flower-garden.

Its root is perennial, somewhat fusiform. The leaves are broadly oblong, obtuse, toothed in our specimens, the lower ones stalked, the rest sessile, the upper ones amplexicaul and somewhat hastate at the base. Racemes terminating the branches, which bear, near the flowers, cordate, acute and shortly toothed leaves. Pedicels downy. Calyx-leaves ovate, obtuse, green, white and membranous at the margin. Petals white, obovate with long claws. Stamens as long as the claws. Fruit (scarcely mature) cordate, the valves keeled, but somewhat ventricose, the summit entire and bearing a style equal to its own length. Stigma capitate.—W. J. H.

AVENA planiculmis.

Flat-stemmed Oat-grass.

TRIANDRIA Digynia.

GEN. CHAR. *Cal.* many-flowered. *Cor.* awned at the back, cloven, nearly cylindrical; *inner valve* flat, ovate. *Seed* elliptic-oblong, united to the hard outer valve.

SPEC. CHAR. Panicle erect, compound. Spikelets erect, linear-oblong, of from 5 to 7 florets, much longer than the calyx. Leaves scabrous, broadly linear, suddenly acute, minutely serrated. Sheaths sharply carinated, scabrous. Lower part of the culm slightly compressed, 2-edged.

SYN. Avena planiculmis. *Schrad. Fl. Germ. v.* 1. 381. *t.* 6. *f.* 2. *Hook. Brit. Fl.* 51. (not of *Engl. Bot.* and of *Hook. Fl. Scot.* which is *A. alpina* Sm.)

Avena latifolia. *Host Gram. Austr. v.* 4. 19. *t.* 32.

WE have ourselves in the *Flora Scotica* fallen into the error of considering the *Avena alpina* of Sir James Smith, which is not uncommon in the Scottish Highlands, as the *A. planiculmis* of Schrader. The true plant of Schrader has only hitherto been found, and that lately, in one spot in Britain, namely, at Glen Sannox, on the ascent of Goatfell, from Loch Rannoch, in the Isle of Arran, Scotland, by Mr. Stuart Murray. Cultivated in the garden, it preserves all its characters, and in every respect agrees with our wild German ones, and with others from the Continent, cultivated in the Botanical Gardens of Edinburgh and Glasgow.

It grows in tufts, with the stems from one to two feet high in the wild state, in the garden (whence our specimen here figured was taken) to a height of three feet: below, the culms are slightly compressed, and there covered with the long, pubescenti-scabrous, remarkably compressed and ancipitate sheaths of the leaves. The leaves themselves are, below, almost a foot in length, those of the culm remarkably short, all of them very broad, linear, deep green, acute, rough on both sides, and especially at the margin. The ligule is oblong, glabrous. Panicle with many but short branches, which seem to be almost verticillate. Spikelets nearly an inch long, broadly linear. Outer valve of the corolla purplish green, diaphanous at the extremity, furnished with a twisted awn, inserted above the middle of the back. At the base of each floret is a short tuft of hairs.

The plant is perennial, and it flowers in July in its native valley.—W. J. H.

POTAMOGETON zosteræfolius.

Grass-wrach-like Pond-weed.

TETRANDRIA Monogynia.

GEN. CHAR. *Pet.* 4. *Cor.* none. *Seeds* 4, naked, sessile. *Sm.*

SPEC. CHAR. Leaves broadly linear, acute, with three principal and numerous close, parallel, intermediate nerves occupying the whole surface. Spikes cylindrical, upon long peduncles.

SYN. Potamogeton zosteræfolius. "*Schumach. Fl. Sælland.*" *Mert. et Koch Deutsch. Fl. v.* 1. 853. *Reichenb. Iconogr. Bot. t.* 175. *f.* 308. *Cham. et Schlecht. in Linnæa, v.* 1. *p.* 182. *t.* 4. *f.* 10. *Hook. Br. Fl.* 74.

P. cuspidatum. *Schrad. ined.*—*Sm. Engl. Fl. v.* 1. 234.

THIS rare species of *Potamogeton* we noticed when describing the *P. acutifolius* of Link, at *t.* 2609 of the present Supplement. To that species, indeed, it is very closely allied in habit and foliage; but it is a stouter and stronger growing plant, and the leaves are more truly linear, acute, and not gradually attenuated into a point. The peduncles are greatly longer, 3 to 4 inches in length, cylindrical or slightly thickened upwards. The spikes are cylindrical, and consequently bear more flowers, in which there appears to be no difference.

Our figure is taken from a specimen sent to us by Mr. Drummond from the Lake of Forfar, where, as well

as in the Lake of Rescobie, in the same neighbourhood, it was found by the late Mr. Don. The only other British station at present known, is in a rivulet at Hovingham, Yorkshire, on the authority of Mr. Teesdale. Our Scottish plant precisely accords with the figure in Reichenbach, and with authentic specimens communicated by Dr. Lehmann.

W.J.H.

Hymenophyllum Wilsoni.

March 1st 1831.

HYMENOPHYLLUM Wilsoni.

Wilson's Filmy-Fern.

CRYPTOGAMIA Filices.

GEN. CHAR. *Fructification* marginal. *Capsules* on a cylindrical receptacle, within a permanent two-valved *involucre*, which is of the same texture as the frond, opening outwards.

SPEC. CHAR. Frond pinnate; pinnæ subunilateral or recurved, wedge-shaped, abrupt, divided into about four linear, erect, simple or forked, spinuloso-serrated segments. Involucres pedicellated, axillary, ovate, inflated, entire.

SYN. Hymenophyllum Wilsoni. *Hook. Brit. Fl.* 450.

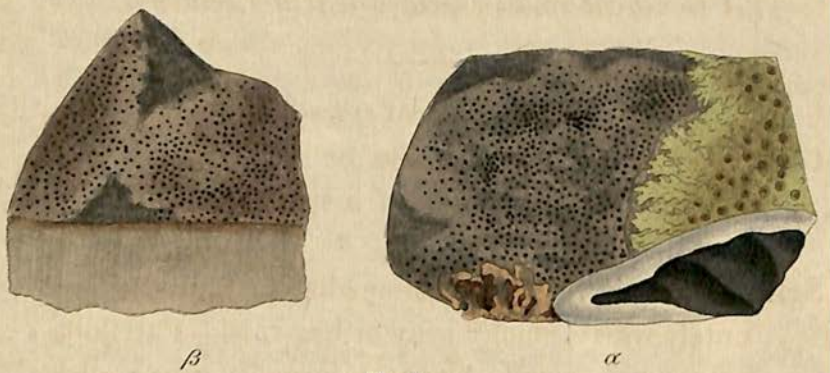
So very different in aspect is this truly distinct species from the far more elegant *H. tunbridgense*, that no botanist who has had the good fortune to see them luxuriantly growing in company, in the rocky woods which border the wildly sequestered Upper Lake of Killarney, would hesitate to pronounce them two species. It was there that, in the summer of 1829, I first became acquainted with the true *H. tunbridgense*, and had at once the gratification of clearing up my doubts concerning the spurious kind, with which, as the common *Hymenophyllum* of North Wales, Cumberland, and Perthshire, I had long been imperfectly familiar, and also of unexpectedly adding another Fern to the British Flora. Hudson, who probably had seen and gathered both kinds, does not notice this species as a variety; but various botanists of modern times have suspected, though they did not ascertain nor promulgate, the existence of two British species; and amongst them the late Miss Hutchins of Ballilickey, a lady ardently attached to botany and one

of its most successful votaries. So constantly has this species been confounded with *H. tunbridgense*, that it is perhaps impossible to give any certain reference to the works of Ray, or of any later author: it appears also to have been wholly unobserved on the Continent. Probably the "Adiantum petræum perpusillum, foliis *bifidis, trifidisque*" of *R. Syn.* 123. may relate to this species, and perhaps also the "Darea tunbridgensis *minor*" of *Pet. Mus.* 762.(?)

None of the figures in Bolton's *Filices* represents this plant. Tab. 2. f. 7., though the specimen said to have been brought from Dolbadarn Castle (where *H. Wilsoni* only is now to be seen), is a figure of *H. tunbridgense;* so also is tab. 31., as is evident in the truly bipinnatifid division of the frond in both instances. Tab. 30. of the same work is a sufficiently intelligible figure of *Trichomanes brevisetum* of modern authors, in a young state (essentially distinguished in every stage by the absence of serratures on the ultimate divisions of the frond).

H. Wilsoni is more rigid than *H. tunbridgense*, and more coarsely reticulated. Frond oblong, on a shorter stalk, the pinnæ obliquely attached, and often much recurved; the segments not so evidently toothed at the apex, and their nerve is continued to the extremity. Involucre with very convex valves; so as to appear compressed in a contrary direction to the convexity; its stalk much bent upwards. Colour of the plant dark green. It curls much in drying. When growing in favourable situations on the perpendicular faces of moist shaded rocks, the fronds are nearly pendulous; as is the case also with *H. tunbridgense.* Fruit ripe in October.

H. tunbridgense has its texture more closely reticulated; the involucre is sessile; the segments of the pinnæ sharply toothed at the extremity, and their nerve evidently discontinued. Colour of the frond of a pale *glassy* green. The pinnæ divided into more numerous segments (frequently ten), which point in two directions on each side of the midrib; those on the outside nearly at *right angles* with the rachis.—W. Wilson.



β α

Fig. 1.

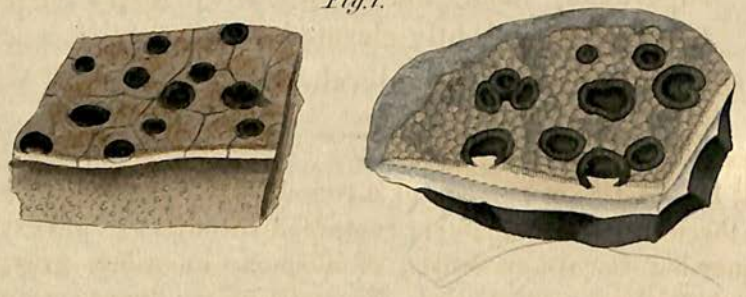
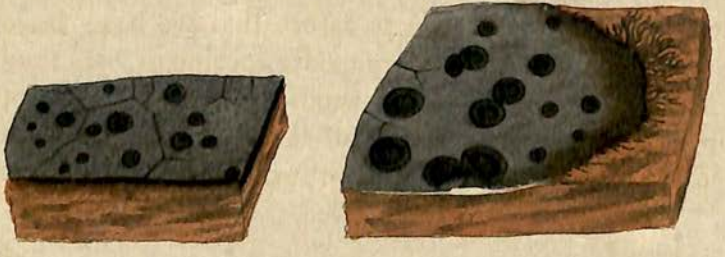


Fig. 2.



Lecidea prominula Fig. 1.

_____ chalybæa Fig. 2.

March 1st 1897.

2687. (Fig. 1.)

LECIDEA prominula.

Prominent small-shielded warty Lecidea.

CRYPTOGAMIA Lichenes.

GEN. CHAR. *Patellulæ* sessile or more or less immersed, with a margin of a substance different from the thallus.

SPEC. CHAR. Crust thin, somewhat tartareous, minutely warty, smoky gray or brownish. Patellulæ superficial, small, black, internally gray; disk flat; margin slightly elevated, mostly entire.

β. Crust browner, more level, minutely cracked.

THALLUS in patches of a roundish outline, and two or three inches in diameter, composed of minute, convex, somewhat tartareous warts, of a smoky or ashen gray, green within, more or less dispersed or confluent on an obscure lead-coloured substratum. Patellulæ black, a little tinged with brown when dry, about as large as poppy-seed, numerous, often crowded in the central parts of the patch, superficial, contracted at the base; their margin obtuse, entire, or occasionally a little waved or indented; smooth, sometimes polished; their disk concave in young patellulæ, in full-grown ones flat and nearly level with the margin, with which it agrees in hue, but under a magnifier it appears not smooth, but roughish, as if minutely dotted; internally gray or pale brownish.

Such is our α, which is occasionally met with on the Sussex Downs, on flints that have been long exposed to the weather. Our β, which we venture to refer to the same species, without being able to assert that we have traced the one to the other by intermediate specimens, was found on a block of close-grained sandstone on the sea-shore near Rye. In this no traces of the dark substratum are discoverable, and the warts, or granulations, are more con-

fluent and flattened, so as to form a more even and rather thicker crust, which is divided by very narrow cracks into small irregular areolæ, and its hue is browner. Patellulæ somewhat immersed at the base, both margin and disk mostly rugose, and the former often indistinct. So similar to this variety is a specimen in the Museum of the Linnean Society, communicated by Acharius himself as *Lecidea pelidna* of his *Lichenographia Universalis*, the *L. lygæa* β of his *Synopsis Lichenum**, that we have hesitated whether we ought not to regard it as the same, although the warts of the crust are somewhat larger, the patellulæ more convex, and their margin rarely to be found. In our plant, however, the patellulæ, which have a very slight tinge of brown when dry, are quite black when moistened; the reverse of what Acharius remarks of his *L. pelidna*. A more minute *Lecidea*, perhaps the true *L. lygæa*, occurs in the same places as our *L. prominula* α, and sometimes intermixed with it. It requires further investigation.

The substratum of the thallus is more obscure, and the warts are more minute and less distinct in *L. prominula* than in *L. atro-alba*, *t.* 2336. The patellulæ, too, are superficial, not sunk, as in that and several other of the verrucose *Lecideæ*, in the interstices of the warts. Their site, number, and uniformly small size, give the plant some resemblance to *Lichen pinicola*, *t.* 1851 †, from which it differs widely in thallus, as well as in place of growth; nor indeed are the patellulæ so minute as in that Lichen.

W. B.

* Shærer, however, in his analytical enumeration of Swiss *Lecideæ*, in *Naturw. Anz. Schw. No. 2. p.* 10. still distinguishes *L. pelidna* from *L. lygæa*.

† *Lecidea parasema* var. *myriocarpa* of Acharius in *Lich. Univ.* and *Syn. Lich.*, and probably the vars. *punctata* and *microcarpa*. If it be a distinct species, as we are inclined to believe it, we would still call it *pinicola*, as it is confessedly the *Lichen pinicola* of Acharius in *Prod. Lich. Suec.* This author has, in his later works, transferred the name to a slight variety of *Lecanora periclea* (*Engl. Bot. t.* 1850), which he had confounded with the original *Lichen pinicola* under *Parmelia exigua* β. *pinicola* in his *Meth. Lich.*—*Lichen parasemus*, *Engl. Bot. t.* 1450. appears to be what Acharius, in his *Syn. Lich.*, has distinguished as a species under the name of *Lecidea elæochroma*.

2687. (Fig. 2.)

LECIDEA chalybeia.

Metallic-black Lecidea.

CRYPTOGAMIA Lichenes.

GEN. CHAR. *Patellulæ* sessile or more or less immersed, with a margin of a substance different from the thallus.

SPEC. CHAR. Crust thin, leaden-black, glossy; at length somewhat tartareous, minutely cracked, and opake. Patellulæ superficial, minute, black; disk flat; margins lightly elevated, entire.

THIS production seems to have been observed only in Sussex, where it occurs in various places on tiles, and occasionally on flints: yet it is perhaps not uncommon elsewhere, since it is likely to be overlooked among *Lecanora exigua*, *t.* 1849, and other minute Lichens, which form in such situations the first crop of vegetation.

Thallus at first in small round patches, which subsequently become confluent, and spread indeterminately to a considerable extent; when young very thin, almost filmy, continuous, smooth, appearing very minutely verrucose under a glass, black, or of a very dark lead-colour, shining with a metallic-like gloss when dry, tinged very faintly with green when wet; the edges sometimes a little dendritic. When older, the crust, although still very thin, is slightly tartareous, and its surface (except generally here and there in spots) becomes opake, minutely tessellated, and somewhat rugged, and assumes an obscure brown tint, most observable when the plant is wet. Patellulæ superficial,

scarcely attaining the size of poppy-seed, scattered, rarely crowded or confluent, and, except in those instances, regularly orbicular: their margin entire, black, generally shining, inconspicuous when wet, from the swelling of the disk; when dry, thickish and considerably elevated in young patellulæ, in the older, thinner, and about level with the disk, which is black, mostly opake, flat, or, when old, rather convex, its internal substance likewise, as far as we can discover, is black.—W. B.

LUZULA arcuata.

Curved Mountain Wood-rush.

HEXANDRIA Monogynia.

GEN. CHAR. *Perianth* inferior, of 6 leaves, glumaceous. *Caps.* 1-celled, 3-valved. *Valves* without dissepiments. *Seeds* 3, at the bottom of the cell.

SPEC. CHAR. Leaves channelled, slightly hairy. Panicle subumbellate, of few heads of from 3—5 flowers with long drooping peduncles. Bracteas membranous, fringed. Capsule ovato-globose, shorter than the broadly lanceolate leaflets of the perianth.

SYN. Luzula arcuata. *Hook. in Fl. Lond. N.S. cum ic. Br. Fl.* 166.

Luciola arcuata. *Sm. Engl. Fl. v.* 2. 183.

Juncus arcuatus. *Wahl. Lapp. p.* 87. *t.* 4.

Juncus nivalis. *Don MSS. in Herb. Brodie.*

AN inhabitant only of the highest of the Grampian Mountains, as Cairngorum, Ben-y-mac-duich, and others of that granitic chain, growing upon the summits and amongst the comminuted rock, where scarcely any other plant can exist. Dr. Graham met with it upon Fonniven in Sutherlandshire. It forms little tufts, by means of its somewhat creeping and interlacing perennial roots, which send forth numerous fibres. Leaves short, curved, narrowly linear, acuminated, channelled and fringed with hairs, which are, however, very fugacious. The stem, or scape, is not above four to five inches high, slender and terminated

by a somewhat umbellate panicle of four heads of flowers, having the peduncles usually recurved. The bracteas are membranous and fringed with long wavy hairs, especially at the point. The leaves of the perianth are broadly lanceolate, acuminate, of a nearly uniform, brown colour, longer than the capsule, around which they persist. Seeds 3, obovate, destitute of crests.

The flowering season of this plant is August: but so severe is the climate at the elevation at which it grows (upwards of 4000 feet above the level of the sea), that it does not always come to perfection: and in the month of August, 1830, owing to the unusual quantity of snow which fell during the summer months, scarcely a perfect blossom appeared to have been formed.—W. J. H.

MELILOTUS leucantha.

White-flowered Melilot.

DIADELPHIA Decandria.

GEN. CHAR. *Legume* one- or few-seeded, indehiscent, longer than the calyx. *Petals* distinct, deciduous. *Flowers* racemed.

SPEC. CHAR. Legumes 2-seeded, ovate, wrinkled. Racemes lax. Corolla twice as long as the calyx. Keel and wings shorter than the standard. Stem erect.

SYN. Melilotus leucantha. *"Koch." DeCand. Fl. Fr. v. 5. 564. Ser. in DeCand. Prodr. v. 2. 187. Hook. Br. Fl. 327.*

Melilotus vulgaris. *Willd. Enum. 790.*

Trifolium officinale β. *Linn. Sp. Pl. 1078. Sturm, Deutschl. Fl. cum ic. Lloyd, Scot. Pl. "Sm. Fl. Græca."*

Trifolium germanicum. *Sm. in Rees's Cycl.*

THIS plant is undoubtedly distinct from the *Melilotus officinalis*, and is probably not uncommon: yet we do not find it noticed by any British author, even as a variety of that plant, till its appearance in the *British Flora*. We gathered it very many years ago upon the Denes at Yarmouth: and Mr. Lloyd published specimens, which he gathered in corn-fields at Aberlady Bay, near Edinburgh, in his Fasciculi of Scottish Plants. Since those stations have been given in the British Flora, J. S. Mills, Esq. has informed us that he finds it at Chipstow, Surrey; James Kendrick, M.D. has found it near Warrington; N. J.

Winch, Esq., in Salt Meadows, at Gateshead, Durham; but in this last spot Mr. Winch suspects it is an introduced plant; and the Rev. W. Wood of Fulham, at Putney, an equally suspicious station.

It flowers in July, and is considered biennial. The stems are from one to two feet or more in height, glabrous, striated. Leaves upon short stalks, ternate, oblong, sharply serrato-dentate, almost spinulose, marked with rather closely set, oblique, parallel nerves. Racemes long, slender, from the axils of the upper leaves, often panicled. Peduncle long. Pedicels with a small, subulate bractea at the base, hairy. Calyx green, with 5 subulate, nearly equal, hairy teeth. Flowers white or cream-coloured. Legume scarcely longer than the teeth of the calyx, ovate, terminated, until it is fully ripe, by the long persistent style, wrinkled externally, 2-seeded.—W. J. H.

April 1st 1831.

HIERACIUM amplexicaule.

Amplexicaul Hawkweed.

SYNGENESIA Polygamia Æqualis.

GEN. CHAR. *Involucre* imbricate, ovate. *Receptacle* nearly naked, dotted. *Pappus* simple, sessile.

SPEC. CHAR. Glanduloso-pilose. Stem corymbose. Leaves toothed; radical ones oblongo-ovate, petiolate; cauline ones several, cordate at the base and amplexicaul.

SYN. Hieracium amplexicaule. *Linn. Sp. Pl.* 1129. *All. Ped. t.* 15. *f.* 1. *t.* 50. *f.* 20. *Hook. Fl. Scot. P.* I. 232. *Br. Fl.* 345.

FOUND in the Clova Mountains by the late Mr. G. Don; and upon the walls of the Castle of Cleish, Kinross-shire, by G. A. W. Arnott, Esq. Mr. Bicheno has remarked it on walls of the Oxford Botanic Garden, and justly observes, that from that station alone it has an equal claim to a place in the British Flora with *Senecio squalidus* and some other plants. Whatever may be thought of its merits to rank as a native of Britain, there can be no question of the identity of the species with the true *H. amplexicaule* of Linnæus, which we have often gathered upon the Continent, and which is, indeed, one of the most distinct of this difficult genus.

It has a woody, perennial, thick root. The stem is a span or more in height, and, as well as the leaves and involucre, thickly covered with brown, glandular hairs, which are most numerous on the peduncle and involucre. The leaves are oblong, remotely and unequally toothed; the lower ones, which proceed from the root, tapering into a short

broad stalk: those of the stem more acuminated, broader at the base, sessile and amplexicaul: the uppermost ones gradually pass into small bracteas on the peduncles. Flowers subcorymbose. Scales of the involucre imbricated, subulate. Florets pale yellow. Corollas 5-toothed, fringed at the top of the tube, and slightly hairy at the back near the extremity. Hairs of the pappus rough.

It flowers in the month of August.—W. J. H.

Jungermannia Taylori.

JUNGERMANNIA Taylori.

Taylor's Jungermannia.

CRYPTOGAMIA Hepaticæ.

GEN. CHAR. Common *receptacle* of the fruit none. *Perianth* or *calyx* monophyllous, tubular (rarely wanting). *Capsule* 4-valved, terminating a peduncle which is longer than the perianth.

SPEC. CHAR. Stems mostly erect, nearly simple. Leaves, all of them nearly orbicular, dotted, entire. Stipules broadly ovate. Calyx terminal, ovate, compressed at the mouth, truncated and two-lipped.

SYN. Jungermannia Taylori. *Hook. Brit. Jung. t.* 56. *Fl. Scot. P.* II. 115. *Hook. and Taylor, Musc. Brit. ed.* 2. 234.

THIS very distinct and handsome Jungermannia grows in densely matted and mostly erect tufts, of a rich purple-brown colour, and is distinguished, even to the naked eye, by its succulent foliage and distinctly placed cellules, giving the whole a dotted appearance. The stems are from two to four inches long, throwing out many roots from the under side. The leaves nearly orbicular, bifariously inserted and spreading or secund. Stipules small, subulate. Calyx terminal, or, from a prolongation of the extremity of the stem, lateral, ovate, somewhat inflated, the mouth compressed, two-lipped and truncate. Fruitstalk short. Capsule ovate.

Marshy and alpine countries produce this plant not unfrequently. Dr. Taylor and Miss Hutchins first discovered the species in Ireland, and Mr. Lyell in Cumberland and, as well as Mr. G. Don, in Scotland. It is most allied to *J. anomala*, which, however, has constantly ovate and acuminate leaves accompanying the orbicular ones.

W. J. H.

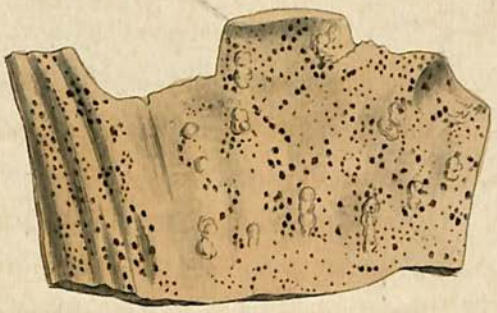
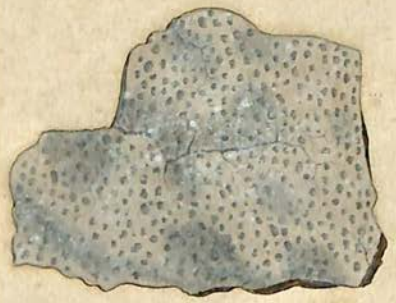


Fig. 2.

Arthonia lurida.



a

Fig. 1.

b

Arthonia impolita.

2692. (Fig. 1.)

ARTHONIA impolita.

Pruinose Arthonia.

CRYPTOGAMIA Lichenes.

GEN. CHAR. *Apothecia* solid, deformed, without a margin, sessile or immersed.

SPEC. CHAR. Crust somewhat tartareous, thin, cracked, uneven, white. Apothecia immersed, flat, confluent, brownish lead-coloured, pruinose.

SYN. Arthonia pruinosa. *Ach. Lich. Univ.* 147. *t.* 1. *f.* 3. *Syn.* 7.
Lichen impolitus. *Ehrh. Crypt.*
Verrucaria impolita. *Hoffm. Fl. Germ. v.* 2. 172.
Parmelia impolita. *Ach. Meth.* 160.

OF frequent occurrence on boarded buildings, and on the rugged bark of old oaks.

Crust in an early stage roundish, with a narrow border of pale cobweb-like fibres; at length wide-spread, somewhat tartareous, but mostly thinner than the shell of a hen's egg, variously cracked and uneven, except in very young specimens; the surface more or less purely white, of a powdered appearance in general; internal substance yellowish green in the living plant. Apothecia immersed, flat or slightly tumid, of an irregular rounded or oblong figure when most simple and separate, but usually confluent, and often so numerous that great part of the crust is almost obliterated or merely forms small tumid plicate borders to the shapeless, crowded, frequently angular clusters; their surface usually so pruinose as to render them inconspicuous unless closely inspected, and in this case their hue is glaucous, or a dull lead colour; sometimes more bare and of a blackish, or occasion-

ally reddish, brown; their internal substance of a paler brown, wax-like, under a glass of considerable power appearing obscurely dotted. On old timber the crust is sometimes broken into irregular tumid warts, upon and among which the apothecia are found variously undulate and flexuose (fig. *b.*).

The synonyms of Ehrhart and Hoffmann are quoted on the authority of Acharius in his *Synopsis;* and, assuming them to be correct, the original trivial name is preferred. Acharius tells us that the plant is also *Lichen pruinatus* of Persoon in Usteri's *Annalen.* The figure formerly given in *English Botany*, *t.* 981, as *Lichen impolitus*, was probably taken from a common appearance of *Spiloma gregaria* (*S. tumidulum* Ach.), an extremely variable species, of which a more perfect state is represented *t.* 2151.

It is difficult to distinguish this genus by technical characters, drawn from the apothecia only, from the *Solorinæ* of Acharius, which that author originally regarded as *Arthoniæ*, but which differ altogether in the nature of their thallus. We have no appropriate name for the apothecia of *Arthonia.* They differ from the *patellulæ* of *Lecidea*, and from the *lirellæ* of *Opegrapha*, by the absence of a proper margin. *Lichen lynceus*, *t.* 809. (*Arthonia lyncea* and *Opegr. notha* γ. *cæsia* of the Acharian *Synopsis*) seems a true *Opegrapha.* Meyer has perhaps done well in placing our *O. dendritica* and *O. Lyellii* in a new genus, his *Platygramme*, to which *O. venosa*, *t.* 2454, also must belong. They appear to differ from true *Opegraphæ* by wanting a proper margin to the apothecia, and they can scarcely be referred to *Arthonia.*—W. B.

2692. (Fig. 2.)

ARTHONIA lurida.

Lurid Arthonia.

CRYPTOGAMIA Lichenes.

GEN. CHAR. *Apothecia* solid, deformed, without a margin, sessile or immersed.

SPEC. CHAR. Crust obsolete, continuous, smooth, dull lead-coloured or brownish. Apothecia sessile, roundish, slightly convex, reddish black.

SYN. Arthonia lurida. *Ach. Lich. Univ.* 143. *Syn.* 7.
Spiloma paradoxum. *Ach. Lich. Univ.* 139. *Syn.* 3.

PROBABLY not rare on bark in shady places. The late Sir Thomas Gage found it on fir-trees in Ireland; our specimen grew on holly, on Black Down, Sussex; and the plant has been observed on oaks elsewhere in the same county.

Crust, if present at all, a smooth film, so extremely thin as to be but doubtfully distinguishable from the surface of the bark, upon which the plant spreads widely and irregularly, imparting sometimes a pale-brownish, sometimes a dark lead-gray tinge. Apothecia numerous, not unlike minute specks of some purplish-black or very deep blood-red conserve, irregularly scattered, often clustered and confluent, superficial, thin, of a roundish but uncertain figure, flattish, but varying a little in prominence, and rather more

convex wet than dry; the surface of a very minutely granulated appearance under a powerful glass; internal substance rather paler, sometimes with an orange tint, marked, according to Mr. Sowerby's observations, with obscure vertical striæ.

It may very reasonably be questioned whether this species has a just claim to a place amongst the Lichens, and whether what is taken for its thallus is in reality more than a discoloration of the bark. Specimens from Acharius, preserved in the museum of the Linnean Society, authorize the citation of the two synonyms given above.

W. B.

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* Erroneously given as *C. autumnalis.*

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* Erroneously given as *Autumnal Water-starwort*.

ERRATA.

Descr. 2603, line 9 from the bottom, *for* 763 *read* 783.
— 2605, — 13 from the bottom, *for* 26 *read* 29.
— 2620, — 6, *for* lgand *read* gland.
— 2631, — 5 from the bottom, *for*, *substitute*:
— 2639, *insert* DIDYNAMIA *Angiospermia.*
— 2648, line 14, insert *Willd. Sp. Pl. v.* 3. 715.
— 2650, — 2, *for* Narow *read* Narrow.
— 2653, — 21, *for* Bridport *read* Bidford.
— 2663, *insert* PENTANDRIA *Pentagynia.*
— 2677, last paragraph, line 1, for *lanifolia* read *laxifolia.*

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